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The Money of Fools:
Hobbes on the Mind and Its Relation to Language

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by

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ABSTRACT

The Money of Fools: Hobbes on the Mind and Its Relation to Language

by

Robert Wilson McIntyre

The importance of language to Hobbes's philosophy is well-known and well-established. A recent book by Philip Pettit—*Made with Words*—has popularized a particular interpretation of Hobbes's views on the relationship between our natural cognitive faculties and language-use. According to the "made with words" thesis, the human cognitive faculties are radically altered and augmented by the acquisition of language: the natural cognitive faculties are incapable of yielding the sort of active, classificatory thinking that (allegedly) only language-use makes possible. The proponents of this view claim that Hobbes denies that, properly speaking, animals and pre-linguistic humans are capable of fully-fledged *thinking*.

However, as I argue in this dissertation, the "made with words" thesis overestimates the extent to which the human mind is actually made with words. In particular, I argue that this "language forward" view gets the relationship between the natural cognitive powers and language reversed. Hobbes holds that all cognition reduces to the conceptions of sense experience and the operations of imagination—he is an empiricist, after all—and that the non-worded, natural mind is capable of engaging in the sort of active, classificatory thought in which the "made with words" thesis asserts it cannot. I make the case by arguing for a novel functionalist interpretation of Hobbes's

philosophy of the mind according to which he is a (proto-)functionalist about the cognitive mental states, but holds a mind-body identity theory of phenomenal states. I apply this interpretation to various aspects of Hobbes's philosophy of mind, exploring his causal-functional characterizations of the distinction between memory and imagination, the passions, deliberation, and reasoning. What emerges is a view of the natural, non-linguistic mind at odds with the "made with words" interpretation—according to Hobbes's philosophy of mind thinking is not essentially linguistic. The capacity for active, classificatory thought is a natural power of the mind: any creature with the capacity for sensation and imagination can think. Thus, the ability to think is common to language-competent humans, humans lacking linguistic ability, and the nonhuman animals.

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Chapter 1: Perception and Cognition

1. Introduction

Although not quite as ambitious a project as that of charting a complete "mental geography,"[1] Hobbes does engage in something recognizable as cognitive science. His psychological theory is an attempt to describe the ways in which information about the environment is gathered, stored, and manipulated by the mind, and signs are a prominent feature of that account. To understand Hobbes's views on language and signification it is therefore necessary first to have a proper grasp of his philosophy of mind. As I argue in the next chapter, Hobbes's theory of signs and signification is just a special instance of his more general theory of cognition; once we understand the way in which signs feature in Hobbes's account of human cognitive psychology, we will see more clearly how signs signify. In this chapter and the next I give a brief explication of the outlines of Hobbes's views on sense perception, mental representation, and nonlinguistic cognition.

There are a host of interpretive issues surrounding Hobbes's views on the mind. One of the primary issues is the question of whether his view should be reckoned, as it has historically been, amongst the mind-brain identity theories, or, as more recent commentators have argued, with the computational or functionalist theories of mind. Hobbes holds that all cognitive activity, or thinking, is a kind of "discourse." Thinking

[1] David Hume, *Enquiry Concerning Human Understanding*, ed. L.A. Selby-Bigge, with text and revised notes by P.H. Niddich, 3rd edition (Oxford: Oxford University Press, 1975), 13.

consists in the manipulation of symbolic tokens, with representational content. This includes not only the sort of thinking that involves the manipulation of linguistic and other conventional symbols (a kind of mental activity only available to humans, who have the use of language), but also a basic kind of natural cognition involving the manipulation of nonlinguistic mental representations, common both to humans and nonhuman animals. Specifically, this nonlinguistic mental discourse is a manipulation of mental representations, which originate in sense perception and in perceptual judgments. In this respect, Hobbes's theory of mind is representationalist: all *cognitive* processes can be explained in terms of the functional relations obtaining between mental representations.

Linguistic symbol manipulation is the source of reason and Hobbes actually identifies the human faculty of reason with a kind of linguistic competency: the capacity to "calculate" or "compute" using names in propositions and syllogisms. It is in virtue of this ability, this *literal* discourse, that human beings are able to achieve scientific, universal knowledge. According to one influential line of interpretation, Hobbes's view is that language and language use affects and alters the natural cognitive faculties. The human mind, being "made with words" transcends the limitations and failings of the natural cognitive powers.[2] This line of interpretation is correct to a point. The human faculty of reason and our mastery of universal concepts does, in Hobbes's view, *constitutively depend* on our learned facility with the use and understanding of a language. However, it is easy to push this interpretation too far and I argue that it distorts

[2] Philip Pettit, *Made with Words: Hobbes on Language, Mind, and Politics* (Princeton and Oxford: Princeton University Press, 2008). Pettit presents the most recent, influential version of this general line of interpretation. See also Hannah Dawson "Hobbes, Language, and Philip Pettit," *Hobbes Studies* 22 (2009):219-230.

Hobbes's views on the natural faculties that humans share with the other animals and underestimates his view their powers.[3] For example, one early advocate of the "made with words" thesis, taken by the idea that "language is the medium of much thinking," argues that "[f]or Hobbes, mental representations are not the underlying mental substratum that *makes* a natural language what it is – a public conveyance for preexisting information, knowledge, desires, and so on."[4] But, looking ahead somewhat, I argue that on Hobbes's account, mental representations *are precisely* the mental substratum of language, and while Hobbes certainly insists that universal, classificatory, scientific thought is dependent on the use of names to form propositions, he is equally insistent (and clear) that all meaningful uses of names must *somehow* ground out in the imagistic mental representations derived from the senses. The natural nonlinguistic discourse of mental representations plays a much larger role in his account of the nature of the human mind than proponents of this interpretation sometimes allow and this will have important consequences for the proper interpretation of Hobbes's theory of signification. It also bears on his metaphysical and epistemological views.

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[3] Philip Pettit argues for example that without words there can be no voluntary thinking hence, animals cannot voluntarily consider, imagine, remember, investigate, etc. (Pettit, *Made with Words*, 15-18 and 37-40); See also Michael Losonsky *Linguistic Turns in Modern Philosophy*, (New York: Cambridge University Press, 2006), 46. The overemphasis on language, particularly as a social instrument, leads to erroneous communication-centric interpretations of Hobbes's philosophy of language and the relation between mental representations and speech (e.g. Isabel Hungerland and George Vick "Hobbes's Theory of Speech, Language and Reasoning" introductory essay to Isabel Hungerland and George Vick, ed. and A.P. Martinich trans., *Thomas Hobbes: Computatio, sive, Logica*. (New York: Abaris Books, 1981), Anat Biletzki *Talking Wolves: Hobbes on the Language of Politics and the Politics of Language* (Dordrecht: Springer, 1997), Gayne Nerney "*Homo notans*: Marks, Signs, and Imagination in Hobbes's Conception of Human Nature" *Hobbes Studies* 4 (1991):53-75).

[4] Deborah Hansen Soles *Strong Wits* (Aldershot, Eng. and Bloomfield, VT: Avebury, 1996), 29. See *Strong Wits*, 29-31 for a discussion of the "made with words" thesis. Soles is led to interpret Hobbes as a functionalist (see *Strong Wits*, 32-46). I agree with Soles insofar as I interpret Hobbes as a (proto-)functionalist *with respect to cognitive states*; however, as I argue in chapter 2, he holds an identity theory of phenomenal states.

In section 2 I give an overview of Hobbes's philosophy of mind and briefly place it in its immediate historical context. I draw parallels between Hobbes's views on the human cognitive faculties with Hume's, upon which I elaborate in the next few chapters. Since Hobbes is an empiricist, sense experience is the foundation of his account of cognition and mental representation. This chapter focuses on his theory of sense perception and sensory representation. I raise two *prima facie* worries for his account, which I proceed to address in the successive sections. In section 3, building on Jan Prins's work on the Hobbesian theory of optics and the physiology of vision, I argue that although he believes that sensations are physical processes within the brains of sentient organisms, caused by the mechanical operation of external objects on their sense organs, Hobbes does not hold a sense data or a simple causal theory of sensation.[5] On his view perceptual states are representational states (and physical states) of an organism, the content of which are extra-mental material bodies and their properties, not sense data caused by those bodies. Briefly put, perceptual states are representational in virtue of the causal role they play in the overall psychological economy of the organisms in which they are instantiated. Perceptual states therein determine an organism's discriminatory judgments and expectations.

[5] Jan Prins "Hobbes on Light and Vision" in Tom Sorell, ed., *The Cambridge Companion to Hobbes* (Cambridge: Cambridge University Press, 1996), 129-156. See also Jan Prins "Kepler, Hobbes, and Medieval Optics" *Philosophia Naturalis: Archiv für Naturphilosophie und die phisophischen Grenzgebiete der exakten Wissenschaften und Wissenschaftsgeschichte* 24 (1987): 287-310. I am also in broad agreement with the argument against sense data readings of Hobbes's view found in Soles, *Strong Wits*, 15-19; I make additional arguments here. For "sense data" or "causal theory" readings see Richard Tuck "Hobbes and Descartes," in *Perspectives on Thomas Hobbes*, G.A.J. Rogers and Alan Ryan, eds., (Oxford: Clarendon Press, 1988), J.W.N. Watkins, *Hobbes's System of Ideas,* 2nd ed., (London: Hutchinson, 1973), and Richard Peters, *Hobbes* (Harmondsworth, Middlesex Eng.: Penguin Books, 1956).

In the next chapter I address the question of Hobbes's account of conscious experience. I argue that although he has a representational theory of perceptual states and is a kind of proto-functionalist about cognitive mental states, if functionalism and the computational theory of mind (CTM) are supposed to be views committed to the claim that *all* mental states can be individuated by their computational or causal-functional roles, then Hobbes is *not* a functionalist, nor does he hold CTM.[6] I argue in favor of the more traditional reading of Hobbes as a type-materialist about phenomenal consciousness. On Hobbes's view, phenomenal qualities of sense experience are nothing but—that is identical with—motions in the brains and bodies of perceivers. Thus, while plausibly a kind of proto-functionalist about *cognitive* states, he is a brain-process identity theorist about *phenomenal* states. (Hence, on my reading of Hobbes, he is committed—if unwittingly—to the view that were there a race of creatures with physical constitutions radically different from human biology, but which realized the same perceptual states and with the same content as human perceptual states, these states would nevertheless not have the phenomenology associated with human perceptual states of the same kind).

Before I continue I should like to briefly address a worry which may have surfaced in the minds of some readers. In discussing the question of whether a seventeenth century philosopher held a functionalist view of the mind, or was the originator of the CTM, or held a mind-brain identity theory, the threat of anachronism

[6] Hobbes's identification of the faculty of reason with the ability to compute names and his claim that ideas are representations of bodies and their qualities are the reasons he is regarded as an early proponent of the computational theory of mind (see, e.g., John Haugeland, *Artificial Intelligence: the Very Idea* (Cambridge, MA: MIT Press, 1985), 23-28). The functionalist reading advanced by Deborah Hansen Soles is motivated by similar observations and claims to save Hobbes from this (allegedly) unacceptable reductionism (*Strong Wits*, 32-38).

very obviously looms. After all, by the time these terms became part of the common philosophical lexicon, Hobbes had been dead for over four-hundred years. For some readers, that fact alone will cause consternation. And I think that some of the commentators on this question have partly vindicated that reaction, by coming dangerously close to actually slipping into anachronism. For example, we find John Haugeland calling Hobbes the "grandfather of AI" (on the basis of the *De Corpore* definition of reason) and crediting him with "prophetically launching Artificial Intelligence in the 1650s,"[7] and Deborah Hansen Soles arguing that Hobbes was a functionalist and held a Putnam/Kripke-style causal theory of reference. These views credit Hobbes with positions widely accepted by philosophers in the latter part of the twentieth century and which continue to be popular now, in the early part of the twenty-first century.

These readings do prompt a certain incredulity and I am sensitive to that. However, viewing an historical philosopher's position through the lenses of our own theories and ideas can be helpful to understand it. So long as we keep straight what is really in the object so-viewed and the contribution of our lenses to the image, we can avoid undue anachronism. I will not argue in what follows that Hobbes actually agrees with the likes of Armstrong, Lewis, or Putnam on *every* point or that they and Hobbes hold precisely *the same* theory of the mind. I am not saying that Hobbes holds a modern functionalist theory of cognitive states *in that strong sense*. Hobbes does not give a functional analysis of mental states that would meet contemporary standards of adequacy. Though I will argue in the next chapter that Hobbes individuates passions by their causal-

[7] *Artificial Intelligence*, 23.

functional role, in the sense that he gives analyses or definitions of our various passions in terms of their causal relations to one another, to the "inputs" of sensation and imagination, and the "outputs" of behaviors, expectations, etc., Hobbes's analyses remain sketches—suggestive and correct in their main outlines, but hardly acceptable as complete theories of the passions in question. One should not expect to find Hobbes articulating Ramsey sentences exactly specifying mental states as the unique "realizers" or "instantiators" of the various functional roles he sketches.[8] Nevertheless, if we are to understand Hobbes's view, we must view it in terms drawn from our contemporary perspective. And if we attempt this translation, we can aptly attribute to Hobbes a position that can be roughly and truly characterized as an "ur-functionalist" theory. Hobbes—like Armstrong, Lewis, and Putnam at one stage in his career—holds that a broad class of mental states (in Hobbes's case, cognitive states) can be characterized by the causal role they play in determining the total behavioral output of an organism. Calling this view a variety of "functionalism" is not committing the sin of anachronism, just because that's not what *he* calls his view. Though the term was not then in currency, it is now the most convenient label for Hobbes's theory and provides historians with the most economic means by which to communicate that theory to a contemporary audience.

2. Imagination and the Hobbesian Copy Principle

[8] See, e.g., David Lewis "How to Define Theoretical Terms" *Journal of Philosophy* 67 (1970): 427-444. See also Ned Block "What is Functionalism?" in *Collected Papers,* vol. 1, *Consciousness, Function, and Representation: Collected Papers* (Cambridge, MA and London: Bradford and MIT Press, 2007), 30-32.

In this section I give a brief overview of Hobbes's psychological theory and I outline some of criticisms of his account, which I address in next two sections. It is often remarked that Hobbes is a foundational figure in the British empiricist tradition (i.e. the common syndrome of views running from Locke through Berkeley to Hume).[9] The seventeenth and eighteenth centuries saw an explosion of interest in the power and limits of human knowledge. It was a widely-held assumption (which came naturally to those impressed by the results of the new sciences) that the key to discovering the boundaries of our epistemological powers, and thereby to reign-in the pretentions of metaphysics and theology to the general benefit of humanity, lay in the analysis and critique of our cognitive faculties. If the somewhat artificial classification of seventeenth and eighteenth century philosophers into the British empiricist and the continental rationalist camps has any philosophically interesting basis in historical reality (that is to say, beyond mere accidents of birth), then it cleaves along joints articulating a division between the two groups over just what the human cognitive powers are and what sorts of faculties need to be posited to account for them.[10]

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[9] For example Richard Peters *Hobbes*, 1st ed., (Harmmondsworth, Middlesex, Eng.: Penguin, 1956), 106. Berkeley is the odd man out in an important respect, for he may in fact recognize a non-imagistic representational faculty (responsible for our ideas of the soul and passions). See, e.g., *An Essay on Motion*, §53. See also Kenneth Winkler *Berkeley: An Interpretation*, (Oxford: Clarendon Press, 1989).

[10] Don Garrett, *Cognition and Commitment in Hume's Philosophy*, (New York and Oxford: Oxford University Press, 1997; Oxford University Press paperback 2002), 11-40. Cf. Michael Ayers: "Whether a conception of knowledge, however strong, is 'rationalist' or 'empiricist' depends on the further question whether such knowledge is supposed to be acquired only by means of a faculty of intellect directed at its special objects, objects explained by some form or other of the metaphysics of 'eternal truths,' or whether it derives purely by abstractions from what is given in sensation" ("Was Berkeley an empiricist or a rationalist?" in *The Cambridge Companion to Berkeley*, ed. Kenneth Winkler, (New York: Cambridge University Press, 2005), 49). See also Alberto Vanzo, "Empiricism and Rationalism in Nineteenth-Century Histories of Philosophy" (forthcoming) *Journal of the History of Ideas*, for a reassessment of the traditional historiography of seventeenth and eighteenth century epistemology, according to which the story of philosophy through the early modern period is a tale of progress from the "one-sided" philosophies of the empiricists and rationalists, to Kant's synthesis.

All parties agree on the existence of a cognitive faculty that receives its material from sense experience. This faculty, commonly identified with the imagination, is one which takes sensory inputs and converts them into imagistic mental representations or memories of empirical objects. It also generates expectations of these objects based (at minimum) in memories of their prior manifestation to perception (e.g. constant conjunctions). The existence of a faculty of the imagination in this sense was widely accepted at least from Aristotle onward, whose account of its operation and scope provided the inspiration for medieval and early modern discussions. Aristotle argued that the imagination, depending as it does on the sense organs, is fundamentally a *bodily* faculty. That is, the imagination is a faculty of the soul dependent on the hylemorphic nature of sensate beings: it is the matter that matters. As Aristotle describes it in *De Anima*, the imagination is an "image-making" faculty, responsible for the production of *phantasia*—appearances—for beings with sense organs.[11] The imagination is a representational faculty shared by all living creatures, so long as they have sense organs and are sentient. Any being that is capable of "being appeared to" by way of the senses has imagination. The imagination also plays an important role, according to Aristotle, in animal behavior. Animal behavior is caused by the operations of the passions and desires; these in their turn depend on sense experience and the imagination.

In the seventeenth century the proponents of the new physics were confident that sensation and imagination could be given a fully mechanistic explanation. Since the imagination is a *bodily* power, its operations must fall under the governance of physical law as just much as the behavior of any other intersidereal system. It is no surprise that

[11] See *De Anima*, III.3.427a16-429a9.

empiricist and materialist philosophers—such as Hobbes—would give mechanistic accounts of this cognitive faculty. But it is worth remembering that even *dualists*, indeed Descartes himself, accepted that the imagination depends on the body. On Descartes account of vision in the *Treatise on Man*, for example, light reflected off of a visible object enters the eye through the retina and, via the optic nerve its "figure" is "traced upon the internal surface of the brain" at the pineal gland (AT XI: 176; CSM I: 106).[12] Descartes continues:

> Now among these figures, it is not those imprinted on the external sense organs, or on the internal surface of the brain, which should be taken to be ideas – but only those which are trace in the spirits on the surface of the [pineal gland] (*where the seat of the imagination and the 'common sense' is located*). That is to say, it is only the latter figures which should be taken to be the forms or images which the rational soul united to this machine will consider directly when it images objects or perceives it by the senses
>
> And note that I say 'imagines or perceives by the sense'. For I wish to apply the term 'idea' generally to all the impressions which the spirits can receive as they leave the [pineal gland] (AT XI: 177; CSM I: 106).

This "idea" impressed, literally, by the object of perception onto the pineal gland is what Descartes calls the "corporeal image."[13] He conceives of the corporeal image as a kind of

[12] I follow the account of Gary Hatfield "Descartes' Physiology and its Relation to His Psychology" in *The Cambridge Companion to Descartes*, ed. John Cottingham (Cambridge: Cambridge University Press, 1992), 335-70.

[13] See, e.g., *Rules for the Direction of Method*, AT X: 415; CSM I: 42. Cf. Aristotle's comparison between sensory stimulation and the impression of a stamp into sealing wax: "The process of movement [sensory stimulation] involved in the act of perception stamps in, as it were, a sort of impression of the percept, just as persons do who make an impression with a seal" (*De Memoria* 1.450a30, trans. J. I. Beare, in *The Basic*

physical impression in the matter of the sense organ, which mechanically affects the brain; indeed, "the substance of the brain being soft and pliant" (AT XI: 173; CSM I: 104), the corporeal images have the power over time to actually alter the physical disposition of the brain itself.[14] These alterations of the brain, wrought by the corporeal images, affect the flow of the "animal spirits" through the vessels and pores of the brain; hence, the corporeal imagination affects the passions and behavioral dispositions. Different people are prone to different passions based on the effects the sense experience of bodies in the environment has had upon different perceivers. The corporeal imagination, understood as a mechanical power of the physical body, is actually responsible for a very wide variety of "psychologically complex responses to objects, conditioned by the passions and memory."[15] Descartes's claim to be able to give mechanistic explanations for these complex functions and behaviors is critical to his anti-Aristotelian program. By mechanizing these faculties and powers of the body, Descartes eliminates the need to posit hylemorphic formal principles like "sensitive" and "vegetative souls" to account for them. Summarizing the results of his thought experiment in *Treatise on Man*, Descartes draws up a list of the vital and psychological powers a properly constructed biological "human-like machine" (i.e. a person, minus a soul) would naturally have. This list makes it clear that he believes quite a number of natural biological and psychological functions can be explicated mechanically:

> I should like you to consider, after this, all the functions I have ascribed to this machine – such as … waking sleeping, the reception by the external sense organs

Works of Aristotle, ed. Richard McKeon, (New York: Random House 1941; Modern Library paperback, 2001), 609.
[14] Hatfield, "Descartes' Physiology," 346-47.
[15] Hatfield, "Descartes' Physiology", 345.

> of light, sounds, smells, tastes, heat and other such qualities, the imprinting of the ideas of these qualities in the organ of the 'common' sense and the imagination, the retention or stamping of these ideas in the memory, the internal movements of the appetites and passions, and finally the external movements of all the limbs (movements which are so appropriate not only to the actions of objects presented to the senses, but also to the passions and impressions found in the memory, that they imitate perfectly the movements of a real man). I should like you to consider that these functions follow from the mere arrangement of the machine's organs every bit as naturally as the movements of a clock or other automaton follow from the arrangement of its counter-weights and wheels … [It] is not necessary to conceive of this machine as having any vegetative or sensitive soul (AT XI: 202; CSM I: 108).

Note that the images in the imagination, which have a physical explanation, are intimately connected with appetite and passions and follow as "naturally" from the physics of the body as a clock's motions follow from its material structure. Both humans and nonhuman animals have corporeal images and their behavior is dictated by the effects of the operations of the corporeal imagination, which includes the memory (AT XI: 178; CSM I: 107). As he puts it in the *Rules for the Direction of the Mind*, "the motive power (i.e. the nerves themselves) has its origin in the brain, where the corporeal imagination is located; and the latter moves the nerves in different ways, just as the 'common' sense is moved by the external senses… the corporeal imagination can be the cause of many different movements in the nerves" which in turn has the knock-on effect of actuating the movement of an animal (AT X: 415; CSM 42). The explanation of the

operation of the senses, the formation of the corporeal image, the imagination, and memory (all of which are powers of the body) in *both* nonhuman animals and human beings is, in fact, the same. So nonhuman animals and human beings share certain cognitive powers, which are thoroughly dependent upon material principles: sense perception and imagination.[16]

At its root, the dispute between the empiricists and the rationalists concerned the question whether the senses and the imagination together sufficed to account for all human cognitive power: Does the human mind possess concepts, the contents of which outstrip the powers of the imagination, and reason, a faculty for combining these concepts and applying them to one another in the execution of judgments? On the one hand, the rationalist philosophers claim that there is (and is need for) a *special faculty* of reason, the "intellect" or the "understanding," a representational cognitive faculty that does not rely on the input of the senses for its material, in virtue of which human beings can reason and think, and for want of which animals cannot. In the passage quoted above from the *Treatise on Man*, Descartes mentions a "rational soul united to this machine," which is the body (AT XI: 177; CSM I: 106). The uniting of the rational soul to the human body is supposed to account for our special, mental faculties. The mechanical explanation of the senses and imagination, for example, "enables us to understand how

[16] Post-Cartesian intuitions may appear to have changed this situation as the seventeenth century progressed into the eighteenth and there seem to be cases that belie the claim that there was general agreement on the corporeal nature of the imagination. I am thinking for example, of Berkeley. I am also thinking of the epiphenomenalism and occasionalism of Malebranche or Leibniz. However, those philosophers who appear to deny the essentially corporeal nature of imagination are focused on our *conscious* awareness of ideas and other mental phenomena, and treat that conscious awareness as the special hallmark of the mental. This is a reflection of the way in which Descartes's discussion of these issues reshaped the focus of the debate. As I pointed out, Descartes himself agrees that animals have *images*; he denies that this amounts to thought properly so-called, because he does not think that animals are *conscious* of their images. They have imaginations, but there is nothing that it's "like to be" them—there is no one home. I discuss this issue more in a subsequent chapter on Hobbes's objections to the *Meditations*.

all the movements of the other animals can come about, even though we refuse to allow that they have any awareness of things, but merely grant them a purely corporeal imagination" (AT X: 415; CSM I: 42). I come back to this "refusal" in the next chapter, but for now I want to flag the point that Descartes thinks that our "awareness" (by which I take it he means our phenomenal consciousness), can be accounted for only by the presence of in the human machine of a rational soul. Descartes makes a similar claim in the Sixth Replies, where he distinguishes "three grades" of sense perception:

> The first is the immediate stimulation of the bodily organs by external objects; this can consist in nothing but the motion of the particles of the organs, and any change of shape and position resulting from this motion. The second grade comprises all the immediate effects produced in a mind as a result of its being united with a bodily organ which is affected this way. Such effects include the perceptions of pain, pleasure, thirst, hunger, colours, sound, taste, smell , heat, cold and the like, which arise from the union and as it were the intermingling of mind and body… The third grade includes all the judgments about things outside us (AT VII: 437; CSM II: 295).

Animals are capable of the first grade, which is the formation of the corporeal ideas, imagination, and memory, since these are all powers of the body and result from the "immediate stimulation" of the sense organs by the objects of perception. Animals, however, lacking a soul cannot achieve the second grade of sense perception—phenomenal consciousness—nor the third, which requires a non-imagistic faculty of

judgment and willing.[17] The status of the rational soul in securing this second grade of perception is deeply problematic and, again, I return to it again in the last section of the next chapter, but the main thrust of Descartes's position is clear: our human minds have special contents (even in perceptual experience), which can only be accounted for by the existence in us of a special, rational soul. There has to be some *other* faculty in us, besides the corporeal imagination.

Descartes's claims regarding the idea of the chiliagon or the idea of God likewise make the same basic point (AT VII: 72-81; CSM II: 50-56). Someone sufficiently proficient in geometry can form a clear and distinct conception of a chiliagon, a concept exactly capturing its essence. But the chiliagon is a figure with one-thousand sides and it is, as Descartes points out, extremely implausible that one can form a mental *image*—a little picture in the mind's eye—of it. (Can you *count* all of its sides to verify that it isn't really an image of a nine-hundred sided figure?) The idea of God is a less compelling case (because more controversial, since more than one philosopher is willing to deny that anyone can really form the idea), but the point is the same. We have some conception of God; yet the content of the conception outstrips the content of sense experience and (hence) the imagistic representations of the imagination. Possession of these concepts cannot depend solely on the representational capacities of that faculty. And therefore, there must be a faculty of the intellect, over and above the imagination, to account for these special, non-imagistic ideas.

[17] See Hatfield, "Descartes's Psychology", 350-351.

On the other hand, a major plank of the British empiricist tradition—a principle characterizing the ersatz tradition, defining it against the ersatz continental rationalist tradition—is the denial of the existence of precisely this faculty of the intellect or the rational soul. The empiricists claim that the human mind has only one representational faculty, the faculty of the imagination, which sources all of its material (ultimately) from the receptive ends of the sense organs. Locke, for example, characterizes his empiricism this way:

> Let us then suppose that the Mind to be, as we say, white Paper, void of all Characters, without any *Ideas*; How comes it to be furnished? … To this I answer, in one word, From *Experience*: In that, all our Knowledge is founded; and from that it ultimately derives it self. Our Observation employ'd either about *external*, *sensible Objects*; *or about the internal Operations of our Minds, perceived and reflected on by our selves, is that, which supplies our Understandings with all the materials of thinking*. These two are the Fountains of Knowledge, from whence all the *Ideas* we have, or can naturally have, do spring (*Essay*, II.i.2, 15-25).

The imagination is a faculty which takes input from the senses and produces "ideas," "conceptions," or (in Hobbes's terminology), "phantasms," imagistic representations of the objects of sense and their qualities. Hence, all ideas—insofar as they have representational content—have empirical content. The argumentative strategy for the empiricist is to deny that the content of our concepts really does outstrip the content of sense experience. They try to show that the imagination alone suffices to account for human conceptual content, either by denying that humans do possess the putative

concepts (e.g. of God or the infinite) or by providing mechanisms for our possession of them in terms of the manipulation of imagistic ideas.

Commenting on Hume's theory of cognition and the faculty of imagination, Don Garrett remarks that:

> [Hume's] distinction of representational faculties into memory and imagination – and no others – constitutes a rejection of the Cartesian ideal of a higher and radically nonimagistic representational faculty of intellect. His remarks about the relation of imagination to the memory, reason, and the understanding reflect a cognitive psychology according to which the acts of the understanding – conception, judgment, and reasoning – are all regarded as *aspects of conceiving,* and hence as operations or aspects of the primary representational faculty.[18]

Garrett could just as well have been describing Hobbes's account of cognition and content. Hobbes likewise holds an empiricist theory of concept formation, accepting the (Aristotelian) principle that "there is nothing in the human intellect that was not previously in the sense" (*Anti White* xxx.3, fol. 338).[19] He adheres to a version of what we might call (following Garrett) the "Copy Principle."[20] Hume's statement of the principle in the *Treatise* is as follows:

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[18] *Cognition and Commitment*, 39.

[19] See *Metaphysics* This principle was a commonplace of Thomist Scholasticism as well, but what distinguishes the empiricist epistemology (and so Hobbes's epistemology) from Thomist epistemology is the role of the "agent intellect" in abstractive cognition – forming universal concepts from the phantasms of sense (Anthony Kenny, *A New History of Philosophy*, vol. 2, *Medieval Philosophy*, (New York and Oxford: Oxford University Press, 2005), 163-166).

[20] Garrett, *Cognition and Commitment*, chapter 2, passim.

> *[A]ll our simple ideas in their first appearance are deriv'd from simple impressions, which are correspondent to them, and which they exactly represent* (*THN* I.1.i, p.4).[21]

Hobbes's version of the principle is strikingly similar. Here are his formulations of the principle and of the relation between sensory representations and the imagination, beginning with *Human Nature*, where, dividing the "powers of the mind" into the "*cognitive*, *imaginative*, or *conceptive*" and the "motive" he writes:

> For the understanding of what I mean by the power *cognitive*, we must remember and acknowledge that there be in our minds continually certain *images* or conceptions of things without us, … This *imagery* and *representations* of the qualities of the thing without, is that we call our *conception*, *imagination*, *ideas*, *notice*, or *knowledge* of them; and the *faculty* or power by which we are capable of such knowledge, is that I here call *cognitive power* (*HN* i.7).
>
> …
>
> Originally all *conceptions* proceed from the *action* of the thing itself, whereof it is the conception: now when the action is *present*, the conception that it produceth is also called *sense*; and the thing by whose action the same is produced, is called the *object of sense* (*HN* ii.2).
>
> …

[21] *A Treatise of Human Nature*, edited with analytical index by L.A. Selby-Bigge, revised with notes by Peter. H. Nidditch, 2nd ed. (Oxford and New York: Oxford University Press, 1978).

> [T]his obscure conception is that we call *phantasy*, or *imagination: imagination* being, to define it, *conception remaining, and by little and little decaying from and after the act of sense* (*HN* iii.1).

Hobbes states the principle in *Leviathan* this way:

> Concerning the Thoughts of man … *Singly*, they are every one a *Representation* or *Apparence*, of some quality, or other Accident of a body without us; which is commonly called an *Object*. Which Object worketh on the Eyes, Eares, and other parts of mans body; and by diversity of working, produceth diversity of Apparences (*Lev*. i, 24: 1-9).
>
> The Originall of them all, is that which we call SENSE; (For there is no conception in a mans mind, which hath not at first, totally, or by parts, been begotten upon the organs of Sense.) The rest are derived from that originall (*Lev*. i, 24: 10-13).
>
> …
>
> IMAGINATION therefore is nothing but *decaying sense*; and is found in men, and many other living Creatures, aswell sleeping, as waking (*Lev*. ii, 26: 26-28).

And in *De Corpore*:

> SENSE [OL: *sensio*[22]] *is a phantasm, made by the reaction and endeavour outwards in the organ of sense, caused by an endeavour inwards from the object, remaining for some time more or less* (*De Corpore* xxv.2)
>
> …
>
> IMAGINATION therefore is nothing else but *sense decaying*, or *weakened*, by the absence of the object (*De Corp*. xxv.7).

Like Hume, Hobbes holds that ideas are copied from sense experience. And, like Hume, Hobbes argues that there is a causal relationship, between ideas and the sense experiences from which they are copied.[23] In fact, the Hobbesian version of the Copy Principle is very strong. Ideas in Hobbes's system "exactly represent" the sensory experiences from which they are derived not because they resemble sense experiences, but because ideas are *identical* with those sensory experiences. The caveat in *Leviathan* i, 22: 11 that conceptions are derived from sense "totally or by parts" provides Hobbes with a distinction necessary to explain the fact that we have ideas of things that do not exist and so cannot be presented in sense experience, such as golden mountains and centaurs. In *Leviathan* ii, 28: 25-31 he draws a distinction between "simple" and "compounded" imagination:

> Againe, Imagination being only of those things which have been formerly perceived by Sense, either all at once, or by parts at severall times [cf. *Leviathan*

[22] According to Harold Whitmore Jones, Hobbes generally reserves "*sensio*" – in *Anti-White* at least – for the act of sensing, rather than the faculty of sense (*Anti-White*, translator's introduction, 18). Here, however, his meaning seems to be "sensation." For example, a color sensation – a phantasm – results from the stimulation of the organs of sense (since the phantasm is type-identical to a bodily motion).
[23] Garrett, *Cognition and Commitment*, 21 and 41, for Hume's "Causal Thesis."

> i, 22: 11: "totally or by parts"]; The former, (which is the imagining the whole object, as it was presented to the sense) is *simple Imagination*; as when one imagineth a man, or horse, which we hath seen before. The other is *Compounded*; as when from the sight of a man at one time, and of a horse at another, we conceive in our mind a Centaure.[24]

In this same chapter, Hobbes again invokes the point that the imagination is capable of "compounding" ideas from the elements derived from the senses to explain the content of dreams: "The imaginations of them that sleep, are those we call *Dreams*. And these also (as all other Imaginations) have been before, either totally, or by parcells, in the Sense" (*Lev.* ii, 30: 12-14). Dreams are not prophecy—they are just jumbled-up causal echoes (so to speak) of sense experiences. Notice that the simple/compound idea distinction is drawn at the level of the *imagination*, not sensation. So a Hobbesian simple idea is not a copy of a simple impression. I return to this point in the next section, but sense experience presents objects with properties, not collections of sensations. Thus, sensory representations are present in the imagination either as wholes, in which case they represent particular objects of sense, or are broken up into smaller units, representing aspects or parts of those objects of sense. The content of a conception is caused by the sensory representation of an extra-mental body *by just being* the same representational entity. That is, the conceptions of sense experience are the same as the conceptions in the

[24] Note that Hobbes's version of the compound/simple idea distinction is different from Hume's and it does not do as much heavy lifting for Hobbes as it does in service to Hume. The point of the addition of "totally or by parts" to the statement of the Copy Principle in *Leviathan* is to cover figments of the imagination and our ability to transpose and "mix" ideas. Simple conceptions are of use in definitions and are critical to his computational theory of reasoning (see the example, e.g., at *De Corpore* i.3); they also ground our knowledge of universals: "By the knowledge of universals … we have in the first place their definitions, (which are nothing but the explication of our simple conceptions)" (*De Corp.* vi.6). By compounding simple ideas – i.e. universals – we arrive at a definition of a particular being.

imagination. This is so whether the ideas are taken "totally" from sense perception in a simple imagination, or "by parcells" in a compounded imagination.

Although the presentation in *Human Nature* iii.1 makes his Copy Principle seem like a stipulation, the discussion in *Leviathan* and *De Corpore* indicates that Hobbes does have some kind of a justification in mind. He does not, as is unfortunately his habit, give much in the way of an explicit argument. What he does say, however, indicates that he (like Hume) thinks that the principle is justified experimentally, by introspection. As the introduction to *Leviathan* makes very clear, introspection is an important methodological tool in Hobbes's account of human psychology:

> Concerning [human nature], there is a saying much usurped of late, That *Wisedome* is acquired, not by reading of *Books*, but of *Men*. … But there is another saying not of late understood, by which they might learn to truly read one another, if they would take the pains; and that is, *Nosce teipsum*, *Read thy self*: which was not meant, as it is now used, to countenance, either the barbarous state of men in power, towards their inferiors; or to encourage men of low degree, to a sawcie behaviour towards their betters; But to teach us, that for the similitude of the thoughts, and Passions of one man, to the thoughts, and Passions of another, whosoever looketh into himself, and considereth what he doth, when he does *think*, *opine*, *reason*, *hope*, *feare*, &c, and upon what grounds; he shall thereby read and know, what are the thoughts, and Passions of all other men, upon the like occasions. I say the similitude of the *Passions*, which are the same in all men, *desire*, *feare*, *hope*, &c; not the similitude of the *objects* of the Passions, which are the things *desired*, *feared*, *hoped*, &c: for these the constitution individuall, and

> particular education do so vary, and they are so easie to be kept from our knowledge, that the characters of man's heart … are legible onely to him that searcheth hearts. And though by mens actions wee do discover their designe sometimes; yet to do it without comparing them with our own … is to decypher without a key (*Lev.* Introduction, 18:1-28 and 20: 1-3).

In Hobbes's hands, the Delphic message is an exhortation to carefully observe and introspect on the psychological states of which one is consciously aware to aid in the search for the laws which govern human behavior and psychology. The "characters" in which these laws are inscribed on another person's mind are difficult to discern; but as the same characters appear inscribed on our own minds, we know by the "similitude" of our thoughts and passions with the thoughts and passions of another, that they describe the same laws written in every person's mind.[25] To understand the behavior of others, we must be able to understand the psychological laws governing thoughts and passions, and their connection to the behaviors they cause. Introspection helps to make the interpretation of behavior possible, for it provides the psychologist with further experimental data over which she can make generalizations to arrive at psychological laws. We can introspect the passions, and their immediate psychological effects, and can hypothesize about their effect on behavior *whatever* their particular objects, howsoever different those particular objects may be. Introspection, on Hobbes's view, gives us a wedge by which to pry open the minds of others. And so he tells us that in order to confirm or refute the account of human nature he gives us in *Leviathan*, all "the pains left

[25]See Watkins *Hobbes's System of Ideas*, 69-71 for comments on Hobbes's so-called "privacy thesis" and "uniformity principles." Watkins notes that Hobbes's confidence in the "uniformity principle" is bolstered by his materialism: since humans have the same physical (biological) make-up, it follows that they would have the same psychology.

another, will be onely to consider, if he also find not the same in himself," as "this kind of Doctrine, admitteth no other Demonstration" (Introduction, 20: 11-13).

The Delphic exhortation of *Leviathan* is addressed to one "that is to govern a whole Nation" (Introduction, 20: 7-8), and so the focus is on reading the passions of other people by introspective reflection on one's own passions; yet the point applies equally to all aspects of cognition.[26] This includes the nature of sense and conception and so Hobbes's implicit justification for his Copy Principle is empirical and relies on introspection. Introspection is just part of the methodology announced in the introduction to *Leviathan*. If we consider each of our thoughts, and reflect on what we do when we think, Hobbes claims we shall find that they are all representations of "some quality or accident" of a physical body. That is, the content of each idea is always some body, with qualities. If we consider the source of this content, we shall find, further, that every one of them was "totally or by parts" derived from sense experiences. But the imagination is the faculty responsible for these cognitive powers and that in virtue of which there is mental representation. But there are no mental representations that were not derived "totally or by parts" from the senses; hence, the imagination just is nothing but "decaying sense."

Sense and the imagination in Hobbes's system are explained according to mechanistic physical principles. Sense is caused by "the Externall Body, or Object, which presseth the organ proper to each Sense, either immediatly, as in the Tast and Touch; or

[26] Compare with the use of "*nosce teipsum*" in *Human Nature* 5.14 ("reading over orderly one's own conceptions") and *De Corpore* vii.1 ("if we do but observe diligently what it is we do when we consider and reason…[we shall discover that when we think] we compute with nothing but our own phantasms"). The focus in both of these uses of "read thyself" is on cognitive content and its relation to scientific method and the foundations of science.

mediately, as in Seeing, Hearing, and Smelling" (*Lev.* i, 22: 17-19). This mechanical action of the external object (the pressing) on the sense organs, transmits motions "by the mediation of Nerves, and other strings, and membranes of the body," to the brain and the heart, which "causeth there a resistance," sending a "counter-pressure" back out to the surfaces of the sense organs (*Lev*. i, 22: 20-22). This motion back outward "because *Outward*, seemeth to be some matter without" (*Lev*. i, 22: 22-23). Hobbes continues:

> And this *seeming*, or *fancy*, is that which men call *Sense*; and consisteth, as to the Eye, in a *Light*, or *Colour figured*; To the Eare, in a *Sound*; To the Nostrill, in an *Odour*; To the Tongue and Palat, in a *Savour*; And to the rest of the body, in *Heat*, *Cold*, *Hardnesse*, *Softnesse*, and such other qualities, as we discern by *Feeling*. All which qualities called *Sensible*, are in the object that causeth them, but so many several motions of the matter, by which it presseth our organs diversly. Neither in us that are pressed, are they anything else, but divers motions; (for motion produceth nothing but motion.) But their appearance to us is Fancy, the same waking that dreaming (*Lev*. i, 22: 23-27 and 24: 1-4).

Sense is as it is registered in our conscious awareness (its appearance to us) is "seeming" or "fancy," but in reality, these seemings and fancies are motions in the brain caused by the actions of an external body upon the sense organs. Hobbes's frequent statements to this effect indicate that his brand of materialism, at least with respect to conscious experiences of sensible qualities, is a type-materialism. The phenomenal properties of color, smell, taste, sound and so on, as they are experienced by conscious human perceivers are not real qualities in the objects external to those perceivers; they are nothing but motions in their brains. In the objects external to the body these sensible

qualities do not exist at all, though these objects have causal powers to produce experiences of sensible qualities in the brain. The objects of sensation have the ability to cause sensory experiences of colors, smells, tastes, sounds, and tactile sensations when they come into the right sort of contact with the human sensory system because they generate the brain processes which *just are* experiences of colors, smells, tastes, sounds, and tactile sensations.

At the physical level, Hobbes accounts for the faculty of the imagination by appealing to a kind of inertial force and to the peculiar material constitution of the brain.[27] As the faculty to store and recall sensory representations, the imagination is essentially a bodily power of a sentient being, a capacity it has in virtue of the body's structure. If Hobbes's biophysical explanations appear quaint and charmingly simple, it should be remembered first that he himself acknowledges repeatedly that they are speculative, to be superseded by the results of future investigations, and second that although the results of our investigations have superseded his account and we know more than he did about the nature of the brain, we still do not really understand how it represents the environment in perception or its own states and operations in introspection. The brain-motions (brain processes) that are phantasms, caused by the operation of a physical body on the sense organs, remain for some time even after the precipitating

[27] As Prins "Hobbes on Light and Vision," 141 and Watkins *Hobbes System of Ideas*, 76-77 point out, the heart also plays a very important role in sensation and perception. The heart is responsible for generating the "backpressure" of phantasms on the surfaces of the sense organs, making them seem as external phenomena. The heart is also responsible for what I call the "affective valence" of conceptions, determining our sense of pleasure and pain, and generating voluntary activity (more on this in the next chapter). That said, I focus on the role of the brain here; the brain appears to be the primary representational organ, on Hobbes's account, in the sense that it is the actual physical seat of mental representation tokens, for it is the brain which retains the phantasm-motions. The heart plays a role in "animal motion" and the passions.

sensory stimulation has ceased: "as wee see in the water, though the wind cease, the waves give not over rowling for a long time after; so also it happeneth in that motion, which is made in the internall parts of a man, then, when he Sees, Dreams, &c" (*Lev*. ii, 26: 18-21). This is just the mechanical explanation of the Hobbesian Copy Principle: all conceptions are the traces of sensory representations, retained in the imagination, because they are the very same motions in the brain. Hobbes's version of the "force and vivacity" distinction, the relative "decay" of the conceptions in the imagination, is also given a mechanical explanation. The motions that are sensation are hindered—and so the sensory phantasms decay and fade, losing their representational features, becoming "informationally impoverished"—by the "interference" caused, in part, by the operation of other external objects on the senses. Once the object which caused the initial motion—say a sensation of light to the eye—is no longer present to the senses, then (assuming we are awake and aware) other objects "continually plieth and soliciteth the eyes, and ears, keeping the mind in a stronger motion, whereby the weaker doth not easily appear" (*HN* iii.1). Hobbes compares this phenomenon to the effect of sunlight on our ability to perceive the stars (*Lev.* ii, 28: 1-9). The distant stars still shine during the daytime and they continually emit light (until they don't), but the comparatively more intense light from our nearby sun obscures that light, makes our eyes insensitive to it, rendering them invisible to the naked eye. These phantasms of sense, caused by the activity of a physical body on the organs of sense, which are retained in the imagination but obscured with interference of continual stimulation from other objects and from the passage of time, are our conceptions.

Hobbes's view receives criticism from a number of fronts. There are two criticisms I wish to consider. Both cast doubt on the adequacy of his views on mental representations. Claims, such as *Leviathan* i, 22: 5-9, i, 22: 1-27, and 24: 1-16 can easily lead to a misunderstanding of Hobbes's views on phenomenal qualities and sense perception, and thanks to the Hobbesian copy principle, to dismissive appraisals of his theory of cognition. According to the first line of criticism, because he so often uses "conception," "idea," and "sense" with apparent indifference, he can give the impression that he does not recognize the distinction between thinking and sensing or between sensory experiences and perception; that is, he gives the impression that he believes we sense and perceive *ideas*, rather than *objects*. This impression is bolstered by his well-worn arguments against the objective, real existence of sensible qualities, which trade on the relativity of sensations and on phenomena like perspectival distortion, mirror images, echoes, and perceptual illusions. For example, in support of the thesis in *Leviathan* i, 22: 24 that sensible qualities are nothing but "fancies" and "appearance," ideas rather than real qualities of objects, he argues that "if those Colours, and Sounds, were in the Bodies, or Objects that cause them, they could not bee severed from them, as by glasses, and in Ecchoes by reflection, wee see they are; where we know the thing we see, is in one place; the apparence, in another" (*Lev*. i, 24: 8-11).[28] Arguments such as these led philosophers like Berkeley and Russell to conclude that the objects of sense perception are fundamentally mental items: (in Berkeley's system) *ideas imprinted on the senses* or (in Russell's system) *sense data*, with which we have private and incorrigible acquaintance. Berkeley concluded that there are no such things as a mind-independent physical objects,

[28] Also *HN* ii.4-10.

while Russell argued that though the physical world exists, it is not the object of perceptual awareness.[29] It sounds, the objection continues, as though Hobbes is proposing the same thing.[30] But, by the Hobbesian Copy Principle, since ideas are copied from sensation, if sensations are nothing but private sense data or representations of sense data, understood, as on Russell's model, as sensibilia—crackles of sound, wafts of scent, patches of color and light—then ideas are likewise a kaleidoscopic mash-up of private sensation-ideas or immediate sensibilia, not representations of objects in the extra-mental world. But ideas of objects are *of objects* not *of ideas of objects* nor *of sensibilia*. The notion that one perceives ideas in sense experience, or perceives sensations or sensibilia, rather than objects, leads to all kinds of problems for an account of mental representation when it is conjoined to a concept empiricism of the sort captured by the Copy Principle. Not all ideas are ideas of smells and colors and so on. Many of them are of things—of people, cats, nebulae and bacilli.

According to the second, related line of criticism, because he holds that phantasms of sense are, in reality, nothing but motions in the brain caused by the action of external bodies, the phantasms of sense do not (his claims to the contrary notwithstanding) really *represent* anything. In the words of Richard Peters, it appears that Hobbes has "simply developed a *causal theory* of sensation and saw no need for a model

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[29] See esp. George Berkeley, *Three Dialogues between Hylas and Philonous*; for the expression "ideas actually imprinted on the senses" *PHK* I.1, p.83. See also Bertrand Russell, *The Problems of Philosophy* (London, Oxford, and New York: Oxford University Press, 1912; OUP paperback edition, 1959; reprint 1973), esp. chapters 1 and 2. Cf. Russell's view in *The Analysis of Matter* (first published 1927; republished, Nottingham, Eng.: Spokesman, 2007; The Bertrand Russell Peace Foundation Ltd.), chapters 18-20.

[30] This is one source of the interpretation of Hobbes as a phenomenalist or as confused between a Russellian story and a Berkeleyan one (see John Laird, *Hobbes* (London: Ernest Benn, 1934) 123-161 and Sir Leslie Stephen, *Hobbes* (London: MacMillan, 1904) 98-100). According to Clarence Dewitt Thorpe, Hazlitt believed that Hobbes endorsed not only phenomenalism, but a Berkeley-style subjective idealism (*The Aesthetic Theory of Thomas Hobbes* (New York: Russell and Russell, 1964) 120-121.).

of representation."[31] Because of his mechanistic story about the causes of sensation, Hobbes can come across as advocating a view on which sense perception just is the impact of physical bodies on the sense organs and that, further, the capacity for sense perception amounts to a passive receptivity to these impacts. Causal interactions of themselves do not generally carry representational content. It is not obvious why, and at least one commentator has argued Hobbes gives no story to account for this, the motions in the brain which are caused by external objects should give rise to just those phantasms which represent *those* external objects rather than *these*.[32] Why, for example, should the images of color and light, motions in the brain, which I experience when looking at an apple represent *an apple* simply in virtue of being caused by an apple? Absent some further explanation, it would appear to be a matter of serendipity that apples cause apple-images. One commentator, in a particularly unsympathetic mood, once claimed that Hobbes, "like the British Empiricists who followed him, … was a martyr to the current physiological account of sensation according to which the objects imprinted themselves on us by isolated, disconnected sorties on our sense-organs" and that according to his theory of sense perception, "what seemed to be qualities of objects external to us were in fact only phantasms in our heads *caused* by the primary properties of external objects interacting with our sense-organs but *representing* nothing outside us."[33] In other words, a brain-motion is not really an *image*. Connected to this concern is the worry that, since Hobbes holds that the sensible qualities—the phenomenal presentations of colors, smells, sounds, textures, and tastes—are phantasms, ultimately just brain processes, he cannot

[31] *Hobbes*, 109.
[32] A.P. Martinich, *Hobbes*, (New York: Routledge, 2005), 34. Martinich declares Hobbes's theory of perception to be "unjustified and naïve."
[33] Richard Peters, *Hobbes*, 106-107.

account for the very facts of consciousness he seeks to explain. There are physical facts and, as Hobbes himself seems acknowledge by his own methodology, introspective facts of conscious experience. But the story about wiggling brains and thumping hearts cannot account for the facts of phenomenology. Thus, it looks like Hobbes is stuck with "two worlds"—the world of corpuscles and motion on the one hand, and the epiphenomenal world of conscious experience on the other.

These are misunderstandings that are easy to make, but are also easily rectified. In this chapter and the next, I respond to these criticisms on Hobbes's behalf.

3. Sensation and Perception

Hobbes does not hold a sense data theory of perception and although his terminology can suggest otherwise, he does not hold the opinion that we sense or perceive private sensations or sensibilia, rather than the physical objects themselves. His position on this matter is most clearly articulated in *De Corpore*. There Hobbes generally eschews the use of "idea" and "conception" in favor of "phantasm" (OL: *phantasma*) when referring to sensations and perceptual experiences. (He takes this in the broad sense of "appearance", i.e. in the sense in which I can say "it appears to me that there is an apple on that plate" and "that apple appears very red and unpleasantly mealy"). The objects of sense perception are not a private parade of aggregated sensations or sensor colors: i.e. colors, smells, sounds, flavors, resistances or the visual, olfactory, auditory, gustatory and tactile sensation of such, but physical bodies in the world:

> The *subject* of sense is the *sentient* itself, namely, some living creature; and we speak more correctly, when we say a living creature seeth, than when we say the eye seeth. The object [of sense perception] is the thing received; and it is more accurately said, that we see the sun, than that we see the light. For light and colour, and heat and sound, and other qualities which are called sensible, are not objects, but phantasms in the sentients (*De Corp.* xxv.3).

He repeats this claim later in *De Corpore*, showing his sensitivity to a three-way distinction between *sensations*, a *sensory qualities*, material objects. During a discussion of the different sense organs, their mechanical operation, and the phantasms appropriate to each, Hobbes writes, for example, that "the phantasm of a lucid body is light; and of a coloured body, color. But the object of sight, properly so called, is neither light nor colour, but *the body itself which is lucid, or enlightened, or coloured*" and that the "objects of hearing, smell, taste, and touch, they are not sound, odour, savour, hardness, &c., but *the bodies themselves from which sound, odour, hardness, &c. proceed*" (*De Corp*. xxv.10; my emphasis). We see colored and luminous objects, not the color or the light, although we have color-phantasms (that is, color sensations) when we see them.

Hobbes says that we "have" phantasms when our sense organs are stimulated in the right way. It is true that on his account the phantasms and sensible qualities arise when a certain causal process occurs. Hobbes (as I argue in chapter 2) is a mind-brain identity theorist with respect to sensible qualities. So not only does he equate sensations with a certain kind of brain process caused by the motion of the organs of sense. He also equates colors and other sensible qualities with the same. He allows, of course, that a sentient being can only perceive an object if it stands in the right kind of causal relation

with that object. Sense perception arises only when these objects stimulate the organs in the right way giving rise to motions in the brain—i.e. those motions introspectively identified as sensations —which in turn give rise to "the phantasms of sense," or sensory qualities like color and odor which some mistakenly grant a wholly mind-independent existence. His view does, therefore, sound superficially like a Russellian "causal theory" of perception, of the type bemoaned by Richard Peters, insofar as Hobbes conceives of perception as a causal process, involving sensations and those brain-motions that are sensible qualities, he does not think that perception is a matter of passive organ-stimulation.

Hobbes distinguishes the sorts of processes involved in perception from those of mere causal reaction. Perception is an active process of *the whole sentient being*, the sensing *organism*, involving sensation, the memory, and discrimination.[34] In fact, a failure to appreciate Hobbes's subtlety here has led some commentators to misinterpret one of the most striking passages of *De Corpore*.[35] In *De Corpore* xxv.5 Hobbes considers a possible objection to his materialist theory of the mind:

> But though all sense, as I have said, be made by reaction, nevertheless it is not necessary that every thing that reacteth should have sense. I know there have been philosophers, and those learned men, who have maintained that all bodies are

[34] Hobbes is probably drawing on *De Anima*, in which memory serves as kind of feedback system.
[35] Tom Sorell, *Hobbes*, (London and New York: Routledge and Kegan Paul, 1986),73-75. As Sorell reads this passage Hobbes simply concedes the point to the objector and just bites the bullet: "This is an embarrassing result, but it is hard to see how Hobbes's theory can be amended so as not to permit some sort of panpsychism" (1986, p.74). (Although Sorell tempers this criticism in a later chapter: "the possibility that all bodies might be sentient … is left open [only?] by theories that fail to acknowledge the complexity of the capacity for sensation, in particular the capacity involves memory" (*Hobbes*, 82).) See also Soles, *Strong Wits*, 33-34. Soles, reading Hobbes as a functionalist about all mental states, sees this passage as evidence for her view, claiming that his dismissal of the panpsychism objection shows that Hobbes is not a type-materialist. I deal with Sole's view more directly in the next section.

> endued with sense. Nor do I see how they can be refuted, if the nature of sense be placed in reaction only.[36]

If the mind is continuous with the body, and the same substance, and if it is possible for matter to think, then how does Hobbes stop himself from sliding into an unacceptable panpsychism, conceding that nonliving, otherwise inanimate bodies are capable of sense perception, perceptual experiences, and mental representation? Hobbes does not slip into an unacceptable panpsychism because the nature of sense does not consist "in reaction only." Mechanical reaction is necessary, but is not sufficient for sense perception. Sense perception does not involve a one-way causal train from the exterior object to the brain and the interior phantasm; it also involves the memory:

> And, though by the reaction of bodies inanimate a phantasm might be made, it would nevertheless cease, as soon as ever the object were removed. For unless those bodies had organs, as living creatures have, fit for the retaining of such motions as made in them, their sense would be such, as that they should never remember the same. And therefore this hath nothing to do with that sense which is the subject of my discourse (*De Corp.* xxv.5).

The concession Hobbes makes here, that a "phantasm might be made" in an inanimate body, is not to concede that inanimate objects are capable of sense perception or sensory experiences. He is also not conceding that inanimate objects are capable of intentional mental states. What is required for sense and for intentionality is something more:

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[36] Who these "learned men" may be is not clear, but Hobbes knew of the works of Telesio. See Cees Leijenhorst, *The Mechanisation of Aristotelianism: The Late Aristotelian Settings of Thomas Hobbes's Natural Philosophy*, (Leiden: Brill, 2002), 68-69.

> For by sense [*sensionem*], we commonly understand the judgment we make of objects by their phantasms; namely, by comparing and distinguishing those phantasms; which we could never do, if that motion in the organ, by which the phantasm is made, did not remain there for some time, and make the same phantasm return. Wherefore sense, as I here understand it, and which is commonly so called, hath necessarily some memory adhering to it, by which former and later phantasms may be compared together, and distinguished from one another (*De Corp.* xxv.5).

The capacity to react when acted upon is insufficient for sense. So too is the bare capacity to retain motions transmitted from the organs of sense. Sense perception *is* a kind of judgment which a sentient being makes of *objects* by the phantasms that those objects cause (note, once again, that the object of sense is not a phantasm). Sense perception implies a kind of discrimination and comparison between phantasms.[37] This capacity for discrimination is what Hobbes calls in *Human Nature* a "sixth sense," the capacity of notice or remembrance:

> By the *senses*, which are numbered according to the *organs* to be *five*, we take notice (as hath been said already [sc. at *HN* ii.3, quoted above]) of the objects *without* us; and that *notice* is our *conception* thereof: but we take *notice* also some way or other *of our conceptions:* for when the conception of the same thing cometh *again*, we take notice that it is *again*; that is to say, that we have had the same conception *before*; which is as much as to imagine a thing *past*; which is

[37] As Sorell (*Hobbes*, 82) does note.

> impossible to the *sense*, which is only of things *present*. This therefore may be accounted a *sixth sense*, but *internal*, (not *external*, as the rest) and is commonly called *remembrance* (*HN* iii.6).

Now, this passage makes the "sixth sense" sound like an extra faculty of the mind, like the Aristotelian common sense. It is, clearly, supposed to perform the synthesizing role of that faculty, but by the time Hobbes wrote *De Corpore* he had found a characterization which (explicitly) eliminates the unwanted associations with Scholastic faculty psychology:

> The perpetual arising of phantasms, both in sense and imagination, is that which we commonly call discourse of the mind, and is common to men with other living creatures. For he that thinketh, compareth the phantasms that pass, that is, taketh notice of their likeness or unlikeness to one another. … Now this observation of differences is not perception made by a common organ of sense, distinct from sense or perception properly so called, but is memory of the differences of particular phantasms remaining for some time; as the distinction between hot and lucid, is nothing else but the memory both of a heating, and of an enlightening object (*De Corp.* xxv.8).

Hobbes is here broaching a topic on which I shall touch in a later chapter—the train or discourse of thoughts—but notice that *sensation* and *perception* are mentioned as species of *thinking* or mental discourse. This discourse consists in a comparison and discrimination of the phantasms, a "taking notice" of their similarities and differences. The sort of memory Hobbes is claiming adheres to all perception is this sort of remembrance, the notice of the similarity and difference of current sensations to past

ones, made by this "internal" sense. He recognizes the necessity for the distinction between perception and simple sensory stimulation, and his account is suggestive (albeit in a sketchy way) of parallel processing accounts of the way in which sensory information is processed in the brain. Sensation is the lower-order process, taking in stimulations from the surfaces of the sense organs and transmitting them to the brain. Perception arises as a second-order process, involving the memory, which discriminates and integrates the first-order stimuli.[38] And so the "internal sense," the second-order processes by which sensory stimulation is converted over to perception properly so-called, is not merely a passive, material capacity to react when acted upon or to retain motions. Otherwise, as Hobbes himself concedes, it would be hard to see why any physical system capable of retaining motions would not also have sense perception. Hobbes is allowing only that inanimate matter may, when acted upon, react internally such that a phantasm is produced. These phantasms in inanimate matter, if they have phantasms, are not tantamount to sense perception. But then neither are the phantasms of the individual sense organs tantamount to sense perception or perceptual experiences.[39]

Hobbes is skeptical of the idea that inanimate objects have sensations, because he does not think that they have the organs requisite for retaining motions transmitted by external bodies, such that second-order discriminatory judgements can take place. Obviously, some inanimate material bodies retain motion. Bodies of water and mounds of Jell-O continue to ripple and wobble after they are struck. Nobody would want to say that

[38] I am not at all happy with the expressions "first-order" and "second-order." I *do not* mean to suggest that perceptual states have sensory stimulations *as their object*. I intend only that perception is "downstream" of stimulation, integrating the information of the senses, as a loom weaves patterns from individual threads.
[39] Recall that the "proper phantasm of sight is light" and the "phantasm of a lucid body is light," but what we actually perceive is a *body*: "the object of sight, properly so called, is neither light nor colour, but the body itself which is lucid, or enlightened, or coloured" (*De Corp.* xxv.10).

they have sensations or sense perceptions of an object that strikes them, Hobbes included. Mounds of Jell-O do not have mental states—states with the requisite intentionality—because they lack the internal notice of their own phantasms, if phantasms arise in them. The phantasms which *may* arise in inanimate bodies as a result of their purely mechanical reaction to being acted upon would not have representational content, according to Hobbes, and in this sense they would not be any different from the phantasms which arise as the result of the stimulation of our sense organs. Because the eye does not see anything and because light and color are not objects of sense perception, the eye does not see light or color, though when it is stimulated a phantasm results. The causal interaction between the organs of sense and the object of sense—stimulus and stimulation—is not sufficient to produce states with representational content. Sensation and sense perception presuppose a capacity for discrimination and comparison between sensory stimulations. Hobbes gives a thought experiment in *De Corpore* to further defend himself from the charge of panpsychism, which illustrates exactly this point:

> For if we should suppose a man to be made with clear eyes, and all the rest of his organs of sight well disposed, but endued with no other sense; and that he should look upon one thing, which is always of the same colour and figure, without the least appearance of variety, he would seem to me, whatsoever others may say, to see, no more than I seem myself to feel the bones of my own limbs by my organs of feeling; and yet those bones are always and on all sides touched by a most sensible membrane. I might perhaps say he were astonished, and looked upon it; but I should not say he saw it; it being almost all one for a man to be always

> sensible of one and the same thing, and not to be sensible at all of anything (*De Corp.* xxv.5).

This same thought experiment occurs in *Decameron Physiologicum* and the point there is the same:

> [Student] *A*. What if a child new taken from the womb should with open eyes be exposed to the azure sky, do you not think it would have some sense of the light, but that all would seem unto him darkness?
>
> [Natural philosopher] *B*. Truly, if he had no memory of any thing formerly seen, or by any other sense perceived, (which is my supposition), I think he would be in the dark. For darkness is darkness, whether it be black or blue, to him that cannot distinguish (*Dec. Phys.*, *English Works* vii, 83).

The simple stimulation of the sense organ and the production of a phantasm are not sufficient for perception. A person deprived of every other sense but sight and forced to look upon nothing but a blue patch would not, according to Hobbes, *see* that blue patch at all. Indeed, Hobbes wants to deny that they can be regarded as really *seeing* the color or *seeing* anything else. That person cannot distinguish this colored patch from another patch of a different color. Under the parameters of the thought experiment, she cannot recall having seen it before, nor a patch of a similar hue, because she could not compare this sensation with other sensations. Under the conditions of the *De Corpore* thought experiment, since she is "endued with no other sense," she could not distinguish the colored patch from a musical note, or the smell of lilacs, and cannot even recognize the blue patch *as* a color sensation. In short, because she cannot discriminate the sensation of

blue from the sensation of green, or the flavor of oysters, she cannot judge that that is a blue patch, and so she does not perceive it. Notice that in both the *De Corpore* and *Decameron* statements of the thought experiment, Hobbes does not deny that the subject of the experiment would have some kind of visual phantasm. He expressly maintains that the subject's eyes are in working order. By hypothesis the subject has "clear eyes" and her visual system is "well disposed": they are receiving the light waves reflecting off of the colored patch at a visible wavelength and that motion is being transmitted from the optic nerve to the brain, to the heart and back again. This is, by his mechanistic theory of the senses, enough to produce the sorts of physical reactions which generate phantasms of sight (or, which *are* the phantasms of sight), and so she would even have "some sense of the light" (i.e. a phantasm). But again, without the ability to use the senses to detect a variety of objects, without the input from the other senses, without the variety of phantasms necessary for discrimination and judgment, there is no sense perception. Perceptual states are intentional states. In Hobbes's view, perception is a capacity of an organism (for sense is in the sentient) and involves more than mere sensory stimulation; sense perception is a second-order state, requiring memory and the capacity to discriminate and judge between phantasms of sense.[40]

He makes a similar point in his discussion of perceptual attentiveness and our (alleged) inability to "discern many things at once" by the senses (*De Corp*. xxv.6). Hobbes claims, as an example of this general phenomenon, that when we read we "see the letters successively one by one, and not all together, though the whole page be

[40] Hobbes apparently continued to think about panpsychism late into his life. He mentions the issue in *The Prose Life* (= *T. Hobbes Malmsburiensis: Vita*, OL I, pp. xiii-xxi). See J.C.A. Gaskin, trans. and ed., *Human Nature and De Corpore Politico* (Oxford: Oxford University Press, 1994), .235 (= OL I, p. xxi). According to Gaskin (*Human Nature*, xlix) the *Prose Life* was composed in 1676.

presented to our eye" (*De Corp.* xxv.6). Although he is surely not right to say that we perceive a passage of text letter-by-letter (at least, this is not the way I seem to experience things), it does appear correct that we can only really distinctly perceive one word at a time when we read. At any rate, we certainly do not consciously perceive the whole page, or even a whole paragraph, at once. As Hobbes notes, in order to actually read a passage, as opposed to merely glancing at a page on which text written, we are compelled to focus our attention on the individual words, for "though every several letter be distinctly written there, yet when we look upon the whole page at once, we read nothing" (*De Corp*. xxv.6). The individual letters of each word on the page are surely having some kind of causal effect on our eyes. Light bounces off of all of them (or rather, the surrounding white paper upon which the text is printed) and must therefore, on Hobbes's physiological picture, cause motions in the organs which are involved in the sight-system. Our eyes, nerves, and brain must, by the laws of mechanical interaction, react to the stimulation. That reaction must eventually culminate in some kind of endeavor outwards, back toward the surface of the sense organs, producing a phantasm. But the only thing we see, however, when we read a passage of text on a page are the individual words as we pass our eyes over them. So the object of sense, words written on a page, can causally interact with our eyes, and interact in the same manner, when we perceive them and when we do not; "hence it is manifest, that every endeavor of the organ outwards, is not to be called sense" (*De Corp*. xxv.6). Again, the difference seems to be one of a second-order mental activity – in sense perception we take notice of the similarities and differences between phantasms of sense, making discriminatory judgments on that basis.

It is hard to see why Hobbes should be embarrassed by his concession. Jell-O does not take notice of anything, with neither external nor internal sense. Jell-O does not form discriminatory judgments; it has no beliefs and no expectations. Jell-O, if it has an organ of sense in any respect, has but one and so cannot compare phantasms between sense modalities. Hobbes is not, according to his own theory, stuck with the absurd consequence that Jell-O has intentional states. He does not have to concede panpsychism simply because he holds that there are some animate, thinking bodies and that sense is "made by reaction." He recognizes that "some natural bodies have in themselves the patterns almost of all things, and others of none at all" (*De Corp.* xxv.1) and he has the theoretical resources to explain and sustain this distinction. To get a more precise view of Hobbes's positive theory, it would be helpful to have some terminology on the table to keep some key distinctions straight. These are terms are not found in Hobbes's writings, but they are distinctions that he makes, at least implicitly. They are distinctions presupposed by the kinds of claims Hobbes makes regarding perception and thought, and can be drawn explicitly using resources within his theory.

First, notice that when an appropriately constructed physical system is acted upon by another body, the motion caused by the action of the latter body upon the former is retained for some time in the patient-body after the action of the agent-body ceases its operations. These residual motions are the effect of the agent-body on the patient-body. These sorts of motions are, in the brains of sentient beings, ideas and memories; in the sense organs, they are phantasms of sense. This kind of activity within a physical system falls short of representation and intentionality—it is a simple, causal reaction—and is not restricted to sentient bodies. As *De Corpore* xxv.5, for example, makes clear, Hobbes is

aware that there could be (in principle) other inanimate bodies which are subject to the sorts of motions of which I am speaking (and, again, that his theory may commit him to saying that these motions in fact count as phantasms). This motion, in a suitably constructed body, is a record of the causal interactions it has had with other bodies. It is a record of causal interactions because the motion *just is* the lingering effect of some agent acting upon the patient—just as a surgical scar is the visible record of the causal interactions between scalpel and flesh. In Hobbes's paradigmatic cases, the motions within such patient-body constitute a record of the activity of the agent-body. I wish to call such a record a "causal-record" or, alternatively, a "causal-recording." Consider the following to be a quasi-technical definition of a causal-record: *e* is a causal-record of an agent body *a* on a patient body *p* iff *e* is the semi-permanent effect of the action of *a* upon a suitably constructed *p*. The effect of the activity of the agent must be semi-permanent in the patient, in the sense that the effect of the agent's activity on the patient has to be somehow robustly retained and sustained in the patient, even when the agent is no longer acting upon it. A suitably constructed patient is a patient capable, in whatever manner, of keeping the effect in a semi-permanent way. As I have defined it, Jell-O is capable of sustaining, for a short time at least, a causal-record. When I strike a mound of Jell-O with a teaspoon, the mound will continue to wobble for some time after I have struck it. The wobbling of the Jell-O, as the effect of the teaspoon's strike, constitutes a causal-record of the action of the teaspoon. The ripples of a body of water, after a stone has been dropped into it, constitute a causal-record of the stone's activity. Surely it is keeping in the spirit of the definition that an LP contains a causal-record of a voice; a photograph is a causal-record of the thing photographed. A block of wood probably would not carry a

causal-record of a person's breath, if blown lightly upon; it would carry the causal-record of an axe-strike. A more adequate definition should take these sorts and degrees of causal interactions into account. It is, however, not necessary to worry too much about these matters for the present purpose, for Hobbes himself fixes his attentions on causal interactions preserved by continuous motion, rather than static states.

A phantasm of sense—that is, the effect of the action of a sensible body upon an organ of sense, transmitted to the brain—is nothing more than a special case of a causal-record. I call causal-records of individual sense organs "sense-records." Light is the sense-record of a luminous or colored body upon the eye, for example. Light reflecting off of, or emanating from, an object stimulates the eye. The light agitates the eye and causes motions within it which are then transmitted throughout the sensory system, reverberating around inside of the affected body.[41] This motion, caused by the light from the agent-body, is a sense-recording of the agent's motion. Moreover, though this perhaps goes without saying, despite my focus (and Hobbes's focus) on vision, there are sense-recordings corresponding to all the senses. The phantasm of sense is the register of that motion within the affected subject.

I have been speaking, in a loose way, as though causal-records are representations, saying for example that the wobbling of the Jell-O is a causal-record *of* a strike from a teaspoon. To be more precise, causal-records, because they are the lingering effects of some antecedent cause, carry information about that precipitating cause. They carry this information only insofar as causal interactions are governed by natural law (for

[41] See, e.g., *HN* ii.7 and ii.8.

they are not utterly random) and only in the sense that facts about the agent-object can be extrapolated from the causal-record on the assumption that relevant facts about the patient-object and the governing laws are known.[42] To extract information from a causal-record therefore, one must be in a position to read information regarding the cause off of the effect. One must be able to recognize the causal-record as an effect of the cause and to have one's expectations and presumptions conditioned by this recognition. Both sides of the reaction must be, in some way, intelligible. On Hobbes's view, the laws governing causal interactions are geometrically describable laws of motion. Extracting information about the cause of a given effect will be a matter of extracting information from the causal-record left by the agent on the patient with the aid of knowledge of the laws of motion, together with facts about the agent and patient. This sort of data recovery can be accomplished in more or less sophisticated ways, to yield more or less information. For example, consider coming upon a block of wood with a large, wedge-shaped gash in it. It does not take much knowledge of physics or of wood or axes to extrapolate information from that causal-record about the cause. Or, imagine walking into your kitchen and discovering that your Jell-O mound is wobbling. One can use that causal-record and knowledge of the behavior of Jell-O when struck to extrapolate from it at least some information – it was struck, though the implement is as yet undetermined.

Because they are nothing but a type of causal-record a sense-recording is not of itself sufficient for perception. Sense-records are not sense perception. They are just the residual effect of a causal interaction and so do not, on their own, have representational

[42] It is information in the mathematical sense. For a good overview see J.R. Pierce, *An Introduction to Information Theory: Symbols, Signals and Noise*, 2nd ed., revised (New York: Dover, 1980), chapter 1. See also Fred Dretske *Knowledge and the Flow of Information* (Cambridge, MA: MIT Press, 1981).

content. The sense-records experienced by organisms, considered individually and in isolation from one another, independently of their role in discriminatory judgments, are not intentional states. The infant described in the thought experiment quoted above from *Decameron Physiologicum* would have what I am calling a sense-record of the azure sky; or rather, it would be less misleading to say *caused by* the azure sky. The infant's eyes are supposed to be working properly. The sky, the colored body, is stimulating his eyes and hence causing motions in the infant. Now, because he is normally functioning, his sense-system retains the motions caused by the motions of the sky, semi-permanently. He has, therefore, a sense-record of the sky, a sense record caused by the sky. Hobbes is very clear though that this infant *sees* nothing at all and is "in the dark". Sight, or seeing an object, perceiving an object, is an intentional state, with representational content. A visual sense-record caused by an object falls short of visual perception of that object, despite being caused in a way which would be necessary for a visual representation of an object of sight. A sense-record is necessary but, again, as Hobbes's examples in *Decameron Physiologicum* and *De Corpore* illustrate, he does not believe that a sense-record alone suffices.

What more is required are those acts of judgment and discrimination. To perceive an object is not just to have one's eyes, ears, skin, nose or tongue stimulated. It is to discriminate and compare the sense-recordings streaming in from the senses. To have perceptual representation, it must be possible to *mis*represent. But a sense-record is just a causal event. They exist or they do not, but they cannot be correct or incorrect. One can be in error regarding one's judgments in a way in which one cannot be in error regarding mere **s**ense-records. Consider Hobbes's example of the production of the phantasm of

light by a "great agitation or concussion of the brain, as it happeneth from a stroke, especially if the stroke be upon the eye" (*HN* ii.7). It is a phantasm of sight and, in a way, a sense-record, for it carries information about the agent and the patient in a way which would satisfy our definition. Yet, the phosphenes produced by a concussive blow, though they appear to the person struck as lights floating in the space in front of them, they are not *of themselves* correct or incorrect. In reality, they are motions in the organism, sense-records of the blow to eye. They are misleading *to the organism* against the backdrop of her memories and the discriminations she makes in the on-going stream of sensory information. Hence sense perception needs "a perpetual variety of phantasms, that they may be discerned from one another." Judgment and discrimination are necessary for perception – this is the point of the thought experiments. Again, the infant who stares at the azure sky and who, by supposition, senses nothing else, does not see the sky. The wobbling Jell-O does not feel the teaspoon strike. Both infant and Jell-O, however, have causal-records, providing a semi-permanent inscription of what befell them. The difference between Jell-O and the infant (though I suppose not the only difference), is that the latter, with time, development, and experience, will find itself in a position to discriminate and distinguish between phantasms. The infant has not only one sense-modality, but five external senses and one internal sense, by which to take notice of his own phantasms. The infant will be able to perceive the azure sky, to *see* the sky and to take notice of the color, because the infant has the capacity to synthesize the information flowing to it from the multiple sense-recordings of objects operating on his sense organs. What marks the sentient infant from the non-sentient Jell-O is that the infant can remember and take notice of the differences between these different sense-records from

different senses. The sentient infant can remember and notice differences between the similarities and differences between sense-recordings made upon the same sense. In this way the infant establishes and recollects patterns in the information it receives by the senses. It can, in short, notice that this or that phantasm is like or unlike some other it has experienced before and it can form expectations and beliefs on this basis. Using these discriminations between phantasms, the infant can discern and perceive objects in his environment. Once it looks upon some other objects, gaining thereby sense-records of other visible things, the infant, returning his gaze to the sky, can recognize (albeit implicitly) that the sensation it experiences is unlike some before and like some other before. It can take notice of its own phantasms and recognize that *this* is a familiar thing, distinct from others. What for the Jell-O are nothing more than causal-recordings, lacking representational content, are for the sentient infant *contentful* streams of information because the infant has the capacity to interpret his otherwise meaningless sense-recordings, forming beliefs, expectations, and presumptions upon them. The infant can discover and recall patterns in phantasms. As Hobbes puts it in *De Corpore*:

> Of all the phenomena or appearances which are near us, the most admirable is apparition itself, τὸ φαίνεσθαι; namely, that some natural bodies have in themselves the patterns almost of all things, and others none at all. So that if appearances be the principles by which we know all other things, we must needs acknowledge sense to be the principle by which we know those principles, and that all the knowledge we have is derived from it. And as for the causes of sense, we cannot begin our search of them from any other phenomenon than that of sense itself. But you will say, by what sense shall we take notice of sense? I

> answer, by sense itself, namely, by the memory which for some time remains in us of things sensible, though they themselves pass away. For he that perceives that he hath perceived, remembers [OL: Nam *sentire se sensisse, menminisse* est] (xxv.1; italics in the original).

This is a general methodological statement (and one to which I return), but we can see at work here the account of Hobbes's views on sensation and perception for which I have been arguing. Sense perception involves the remembrance and notice of sensations. Sensory stimulations remain in the brain, distinguished and compared by the organism to further sensory impacts and their phantasms. In this way, for a sentient organism, *phantasma* become *to phanesthei;* mere patterns of stimulation and brain processes become the admirable phenomena of nature.

Sense perception does not merely happen to a sentient being but is the result of an active process, mental acts of sentient organisms. Sense perception is a compounding of phantasms of sense. It is a compiling of sense-record**s** from multiple sense organs, or from the same sense organs applied to a multitude of objects, by memory, discrimination, and judgment.[43] Hobbes gives two distinct, but compatible, characterizations of judgment. According to the first characterization a judgment is the terminus of a process of thought and is a kind of expectation or presumption:

[43] In this respect I concur with Sorell *Hobbes,* 82-84 and Soles *Strong Wits*, 14-19 and 23-31, both of whom recognize the importance of judgment, discrimination and memory, as well as some kind of "compiling" of sensory phantasms to yield perceptual representation. Nonetheless, both Sorell and Soles fail to appreciate the role this account plays in Hobbes's reply to the panpsychim charge. Soles, for example, sees in this reply an affirmation of functionalism and a denial of type-materialism. See David Armstrong, *A Materialist Theory of the Mind* (New York: Routledge & Kegan Paul, 1968), on the importance of the notion of intentional use to the very concept of a sense organ.

> If the Discourse [governed by the desire for knowledge (*Lev.* vii, 98: 1-3)] be meerly Mentall, it consisteth of thoughts that the thing will be, and will not be; or that it has been, and has not been, alternately. So that wheresoever you break off the chayn of a mans Discourse, you leave him in a Praesumption of *it will be*, or, *it will not be*; or *it has been*, or, *has not been*; All which is *opinion*. … [The] last Opinion in search of the truth of Past and Future is called the JUDGMENT, or *Resolute* and *Finall Sentence* of him that *discorseth* (*Lev.* vii, 98: 6-15).

Note that although in this sense of "judgment," a judgment is the resolution or end of a chain of discourse, the discourse he mentions is mental not verbal and the "final sentence" is not a sentence composed of words. I take up the topic of the discourse of the mind in a later chapter. What matters for my argument in this section is that judgments occur without language and are, in this sense, a kind of expectation or presumption. Judgment in the second sense is an ability to take notice of thoughts and experiences and to "observe their differences and dissimilitudes; which is called *Distinguishing*, and *Discerning*, and *Judging* between thing and thing" (*Lev.* viii, 104: 30-31). It is an ability to *make judgments* in the first sense. This ability is necessary, along with "*good fancy*," for the cultivation of a good "natural wit" which consists both in a swift transition from thought to thought, but also in a habitually steadfast focus, directing thought upon "some approved end" (*Lev.* viii, 104: 17).[44] And this mental ability can be exercised and perfected into an intellectual virtue, a component of what it is to have a good natural wit for "both fancy and judgment are commonly comprehended under the name of WIT,

[44] Good fancy is the ability to observe similarities between thoughts and experiences swiftly or to see similarities which are not obvious (*Lev*. viii, 104:25-30). See also *De Corp.* xxv.8

which seemeth a tenuity and agility of spirits, contrary to that restiveness of the spirits supposed in those that are dull" (*HN* x.4).[45] This "virtue of the mind … by which men attain to exact and perfect knowledge … is commonly termed by the name of JUDGMENT: for, to judge is nothing else, but to distinguish or discern" (*HN* x.4) but "particularly in matter of conversation and businesse; wherein, times, places, and persons are to be discerned, this Vertue is called DISCRETION" (*Lev* viii, 104: 33-34). But irrespective of which sense of judgment he's considering, Hobbes does not think that the judgment is a separate faculty of the mind, but is a kind of operation of the imagination.[46]

Judgment, both as a capacity and the active use of that capacity, is at work in perception. On the one hand, the sort of judgment necessary to perception, as we have seen from the thought experiment in *De Corpore* and *Decameron Physiologicum*, is the ability to discriminate between phantasms, the sense-records from different sense-modalities and from the same sense, applied to different objects, at different times and so on. But, of course, it also involves judgment in the second sense. The judgment involved in sense experience, recall, is that "judgment we make of objects by their phantasms; namely, by comparing and distinguishing those phantasms" (*De Corp.* xxv.5) Sense perception is, as Hobbes recognizes, intentional, and judgment as an ability to discriminate and recognize dissimilarities, culminates in a judgment as a final and

[45] "[In] case such discerning be not easie, [those who discern and judge] are said to have a *good Judgement*" (*Lev*. viii, 104:).

[46] Cf. *Lev*. ii, 36: where Hobbes derides the erroneous psychology espoused in the schools: "Some say the Senses receive the Species of things, and deliver them to the Common-sense; and the Common Sense delivers them over to the Fancy, and the Fancy to the Memory, and the Memory to the Judgment, like handing of things from one to another, with many words making nothing understood." I take it that Hobbes is not casting a skeptical eye on the existence of judgments, or on the importance of judgment to sense experience. He is instead criticizing the view that the mind passively receives the "species" of things and then passes them around, whole and intact, like a gravy boat, from one to another. Hobbes is also objecting to the unhelpfulness of such a view—it does not explain perception at all.

resolute opinion regarding those distinctions (*viz*. that *this* is the same object I perceived *before*).

As an illustration, consider Hobbes's discussion in *De Corpore* of "how by the *ratiocination* of our mind, we add and subtract in our silent thoughts, without the use of words" (i.3). There he asks us to reflect on the experience of person seeing another at a distance, and watching him as he approaches. At first, when the man is very far away, the observer will only "see something afar off and obscurely" and even in without the use of language the observer will "notwithstanding, have the idea of that thing for which now, by imposing a name on it, we call *body*" (*De Corp*. i.3). And as the man approaches the observer will see "the same thing thus and thus, now in one place and now in another" and he "will have a new idea thereof, namely, that for which we now call such a thing *animated*" (*De Corp.* i.3). When the man observed is finally beside the observer, the latter will hear "the voice" and see "other things which are signs of a rational mind" and will have then a new idea of "that for which we now call anything *rational*" (*De Corp.* i.3). And finally:

> [W]hen, by looking fully and distinctly upon it, he [the observer] conceives all that he has seen as one thing, the idea he has now is compounded of his former ideas, which are put together in the mind in the same order in which these three single names, *body*, *animated*, *rational*, are in speech compounded into this one name, *body-animated-rational*, or *man* (*De Corp.* i.3).

This is the process of adding ideas. Notice that at the end of this process, the observer conceives all of the qualities which he discerns in sense to be qualities *of one thing*. He

perceives it "as one thing" not as an amalgam of qualities. The process of course goes in the other direction as well, and Hobbes continues his example, illustrating the subtraction of ideas:

> Again, whosoever sees a man standing near him, conceives the whole idea of that man; and if, as he goes away, he follow him with his eyes only, he will lose the idea of those things which were signs of his being rational, whilst, nevertheless, the idea of a body-animated remains still before his eyes, so that the idea of rational is subtracted from the whole idea of man, that is to say, of body-animated-rational, and there remains that of body-animated; and a while after, at a greater distance, the idea of animated will be lost, and that of body only will remain; so that at last, when nothing at all can be seen, the whole idea will vanish out of sight (*De Corp.* i.3).

Notice that although Hobbes is concerned to illustrate how, even without the use of language, *thought* is nothing but a computation of ideas, his example is one of sense experience. Sense perception, then, involves a computation of thoughts. Notice as well that at each step of this computational process, the observer is not described as perceiving phantasms of sense, or sense-records. The observer does not see or perceive a bunch of phantasms or ideas, but discerns one thing—a man—by its various qualities. He is described as seeing *a body*, that is to say, an *object*. First he sees *some body*—the most general thing one can possibly perceive (for when that goes from the sense, so goes perception altogether). Then, by taking notice of its motion and activity, he sees an *animated body*. Finally, when before him, the observer hears, not *noise* but *a voice*, and sees a *man*: an *animate, rational, body*.

The phantasms of sense, the sense-records, though not themselves immediately perceived in sense experience are nonetheless that by means of which we take notice of the similarity and differences between things, and that discrimination constitutes the perceptual judgment. Sense-records supply the material requisite to make the discriminations that are necessary for perception, for "*effects* and the *appearances* of things to sense, are faculties or powers of bodies, which make us distinguish them from one another; *that is to say, conceive one body to be equal or unequal, like or unlike to another body*" (*De Corp*. i.4; the second set of italics are mine). And "when by coming near enough to any body, we perceive the motion and going of the same [i.e. a *body*], we distinguish it thereby from a tree, a column, and other fixed bodies; and so that motion or going is the *property* thereof, as being proper to living creatures, and a faculty by which they make us distinguish them from other bodies" (*De Corp.* i.4). These "faculties or powers of bodies" are not what we directly perceive in sense experience, though they are essential to perceptual judgments. They are, rather, those features of the bodies we perceive which allow us to recognize one body from another.

But these features cannot be prised apart from our perceptional representations of bodies and are not available, naked and alone, for the scrutiny of our immediate conscious awareness. It takes an act of computation, of taking note of our conceptions, to recognize distinct sense-records. For example, "the distinction between hot and lucid" that is, between a phantasm of sight and a phantasm of touch, a sense-record to the eye and a sense-record to the skin, "is nothing else but the memory both of a heating, and of an enlightening object" (*De Corp.* xxv.8). Why is this? Of course, in the seventeenth century there were no energy efficient LED blubs to give us light without heat, and any

luminous body one was likely to encounter in sense experience, would also likely be a warm body—a bonfire, a lit candle, hot coals, the sun. According to Hobbes, conceiving of the idea of warmth without light, to take notice of it, requires a mental activity beyond simple perception. It requires drawing up memories of all the warm things and the non-warm things experienced in sense. It requires distinguishing between them and noticing what it is that the sun, fire, and lit candles have in common with living human skin, a stone lying in the walk on a sunny day, bread fresh from the oven, and what differences obtain between them. Warmth, the appearance, the phantasm and sense-record a warm body leaves on a sentient being's organs of touch, is not something *touched or felt in any of those warm objects*. One has, in some sense, to discover or (perhaps more accurately) recover the un-computed, pure information of the sense-record, because, as I have been arguing, it is not given in sense and is not immediately perceived.

This is the proper way to understand Hobbes's meaning in passages like *Leviathan* i, 22: 1-16, and the Hobbesian simple/compound idea distinction. Our ideas *when we consider them* singly—when we take notice of some aspect or other of them—are nothing but appearances, sense-records, of the objects of sense experience. He is not claiming that each of our ideas, individually, is a copy of some sense data, with which we had immediate perceptual contact and which, in turn, represents a secondary quality of the external body. Hobbes is claiming instead that our ideas, which are about the objects of sense perception—the animals, vegetables, minerals, and other bodies we perceive—when we consider them and examine them, adding and subtracting from them in thought, we notice that each unit of our thought, when considered in itself, is a representation of an accident in a body. That is, however, a claim Hobbes is making as a *philosopher*; it is

a robust philosophical theory and not at all a claim about introspectively manifest thought-content. For example, when we, as philosophers, seek the cause for why these animate bodies appear to us different from the non-animate bodies, we draw up memories of cats, people, horses and so forth and by subtracting ideas from them by the "ratiocination of the mind", we hit upon a difference between these and the inanimate things is motion. The animate bodies we have perceived—the objects of sense experience—differ from the inanimate bodies we have perceived by remembering that we have seen the same things "now in one place and now in another". A similar story can be told for color and figure. No colored thing is ever perceived without figure. One does not perceive the color or the figure; one perceives the colored and figured thing. Yet, by comparing our memories of colored things we have seen with figured things we have touched, we can come to discover the idea of figure, independently of color, and we can seek out the cause. This is an act of thought, of comparing and contrasting ideas and the phantasms of sensible qualities out of which they are composed; for beings with sufficient intellectual (and linguistic) capacity this act of thought can be developed into an act of theorizing and scientific discovery. One decomposes the ideas in thought to recover the sense-record; science and knowledge of causes and effects allows us to decode the sense-record to gain knowledge of the cause.

Hobbesian simple ideas are not simple in the sense that they cannot be decomposed. They are simple in the sense that they are taken into the mind, copied from sense simply: they are copied from sense "totally" as the object perceived in sense experience was perceived in sense experience and not "by parts." My idea of Archibald J. Dog is an idea of that Scottish terrier, out in the yard. It is a simple idea because it was

copied from my sense perceptions of Archie as he is presented to my sensory system—a hyperactive, smelly, loud, black, greasy, furry, four-legged thing. For further illustration, consider the experience of hearing a melody. When one hears the melody of a song, one is immediately aware, not so much of the individual notes which compose the melody, but the melody itself. The ear is bombarded one note at a time, and so has a sense-record of lateral waves of air pressure emanating from the source of the sound, but one *hears* a melody. This has to do, surely, with the fact that the mind retains the memory of the last note and forms an expectation regarding the next: the melody seems to exist in the window of consciousness. Reflecting upon the melody one can, *in retrospect*, divide the melody up into individual passages and notes. This is not how it is perceived, however. This is a process of analysis. It is what Hobbes would call computation or mental ratiocination.

Ideas copied from sense, therefore, are not ideas of atomic sensations. They are not copies of colors, smells, and so on. Ideas are copied from sense as ideas of things. Sense perception is not a mere mosaic of sense data, flooding into the senses. The flow of information from the objects of sense to the sense organs occurs below the level of sense perception. Sense perception is compiled sensation—sense-records compared and contrasted. Hobbes believes that sense perception is of objects discerned by the use of the senses and not merely the sensations themselves. Mental representation, by the Hobbesian Copy Principle inherits its content from the content of sense. Since the content of sense experience are objects in the environment and not mere sensations, ideas are not of sensations, but of objects. Ideas represent bodies in the same way that sense perceptions do because they just are sense perceptions of bodies, retained in the brain of

the sentient being. These are the simple ideas. The idea of a man is a simple idea, a copy of some sense perception of a man, retained by the memory. Compound ideas are copied from sense by being constructed from the sense-records left by the objects of sense perception. Active ratiocination, the computational procedures of mental addition and subtraction, pulls thoughts apart and allows a sentient being to consider particular aspects of their ideas, isolating this or that feature of the idea for comparison with other ideas.

Chapter 2: Sensible Qualities, Ideas, and Mind-Body Identity

1. Introduction

The account sketched in the previous chapter is, in effect, a causal-functional theory of perception. The contents of perceptual representation are bodies, external to the perceiving organism. A particular image or a compounded series of phantasms represent objects in the extra-mental world by virtue of the causal roles played by these phantasms in the overall psychology of a sentient being. The causal covariance of brain states and phantasms with the accidents of physical bodies does not alone constitute the representational relationship between perceptual states and the world they represent. The brain-heart motions which are perceptual representations represent bodies because they determine judgments of discrimination and expectation. Hobbes's view about cognitive states is an early, germinal form of functionalism (an ur-functionalism). He has not worked through the details to any great degree (for one thing, he does not have a sophisticated concept of a computational function), but he does recognize the core insight: physical tokens have semantic properties in virtue of their causal role in a larger system of symbols. I explore these proto-functionalist analyses in chapters 3 and 5 and I argue, in particular, that a *sign* is a kind of mental item individuated by the conceptual or cognitive role it plays in the total cognitive and behavioral ecology of a sentient being.

But cognitive mental states are not the only mental states. After we have given our functional analyses of beliefs, desires, thoughts, and so on, there remains (in the words of U.T. Place) an "intractable residue of concepts clustering around the notions of

consciousness."[47] Hobbes recognizes this. According to Hobbes, every idea is a representation of some quality or other accident of a body without us, derived from our sense experiences. Conscious perceptual experience presents a world of physical objects, external to the body with the very sensible qualities they seem to have. We experience bodies with brilliant sapphire sheen, which emit harsh noises, reek of stale beer, and are disconcertingly warm to the touch. These qualities, familiar to perceptual experience, what Hobbes calls the "sensible qualities," are phenomenal qualities: qualities of objects as they appear in sense experience by which we note distinctions and similarities between things (following Loar's usage, phenomenal qualities are the ways the objects of perception "look").[48]

One of the persistent interpretive issues surrounding Hobbes's views on mind concerns the relationship between his psychological theory and his explicit metaphysical commitments. It is unquestionable that Hobbes adheres to *some* version or other of materialism, but the contours of his theory have proved difficult to discern. The source of this difficulty is the apparent tension many commentators have found between, on the one hand, Hobbes's repeated claims to have accomplished a bold reduction of the mind to the mechanical operations of the body and, on the other, his acceptance of an introspective methodology and insightful analyses of human behavior in terms of folk psychological concepts. The question arises as whether and to what extent Hobbes's psychological analyses are really consistent with his metaphysical commitments: can he actually deliver

[47] "Is Consciousness a Brain Process?" *British Journal of Psychology* 47(1956): 44-50, reprinted in David Chalmers, ed., *Philosophy of Mind: Classical and Contemporary Readings*, (New York and Oxford: Oxford University Press, 2002), 55.
[48] See Brian Loar, "Phenomenal States," in., *The Nature of Consciousness*, Ned Block, O. Flanagan, and G. Guzeldere, ed. (Cambridge MA: MIT Press, 1997), reprinted in *The Philosophy of Mind*, David Chalmers, ed. (New York and Oxford: Oxford University Press, 2002), 295.

on the materialist reduction he promises? Many of Hobbes's commentators (friendly and hostile) have argued that he cannot.[49] Some argue that on his account of phenomenal consciousness, conscious states are subjective only in the sense that they *inhere in a subject*.[50] Thus Hobbes stands in stark contrast with his contemporary Descartes, for he (allegedly) lacks any meaningful account of the distinctly subjective character of the mental. Yet others, attempting to rescue Hobbes from himself, have pointed out that his the psychological analyses relevant to his political and ethical theories—his account of the passions, for example—do not invoke his mechanistic physics. They have argued on these grounds that, his strong rhetoric to the contrary notwithstanding, Hobbes does not reduce the mental to the physical.[51] However, these arguments in one way or another presuppose that mental properties and physical properties are simply metaphysically incommensurable, which of course spells doom for *any* attempted reduction of the mental to the physical.[52] But I argue that on the interpretation I am advocating, Hobbes's psychological theory is in fact consistent with his metaphysical commitments and, on his own (seventeenth-century) terms, he can make good on his reductionist claims.

As I mentioned in the introduction, Hobbes's concept empiricism commits him to a kind of imagism about mental representations: all ideas are iconic, analog

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[49] Richard Peters and Henri Tajfel "Hobbes and Hull—Metaphysicians of Behaviour," *British Journal for the Philosophy of Science*, 8 (1957): 30-44. Bernard Gert, "Hobbes, Mechanism, and Egoism" *Philosophical Quarterly* 15 (1965): 341-349. For an argument that his philosophy of mind is inconsistent with his philosophy of science, see Joel Leshen "Reason and Perception in Hobbes: An Inconsistency" *Noûs* 19 (1985): 429-437.

[50] Sorell, *Hobbes*, 79-81.

[51] Bernard Gert argues that "Hobbes's psychology is almost completely independent of his mechanism" ("Hobbes and Psychological Egoism" *Journal of the History of Idea*, 28 (1967): 503-520. See also J.W.N. Watkins "Philosophy and Politics in Hobbes," 5 (1965): 125-146. Also, Jeffery Barnouw "Hobbes's Causal Theory of Sensation" *Journal of the History of Philosophy*, 18 (1980): 115-130.

[52] See Tommy L. Lott "Hobbes's Mechanistic Psychology" in *Thomas Hobbes: His View of Man*, ed. J.G. van der Bend, (Amsterdam: Rodopi, 1982), 63-75. See Watkins "Philosophy and Politics in Hobbes," 238.

representations, and have a "modal specificity" thanks to the Copy Principle.[53] So although mental representations derive their intentionality from their functional roles, the representational vehicles themselves (for animals like us) are constrained by the contingent facts of our sense modalities. The phenomenal features of our perceptual representations, which carry over by the Copy Principle to our mental representations, are relevant to our ability to use ideas and images to "pick out" their object. I explore the consequences of this for mental representations. I argue in section 2 that the "images" and "appearances" of sense experiences—the perceptual representations of the objects of sense, composed of phenomenal qualities—are identical with the very *act* of perceiving and noticing the objects of sense (a bodily act). In this way, Hobbes's materialism squares with his recognition of phenomenal qualities. Hence, he is committed neither to a mere causal theory of sensation nor to epiphenomenalism. Finally, I argue in section 3 that this interpretation resolves the persistent question (which I mentioned at the outset of the chapter) concerning whether and to what extent Hobbes provides a reductive analysis of the mind. Despite the functional analyses of cognitive states, Hobbes does in fact intend to provide a reductive account, explaining all mental phenomena in terms of the mechanical interactions of bodies.

2. Phantasms, τὸ φαίνεσθαι, and the Body

[53] I take the term "modal specificity" from Jesse Prinz "The Return of Concept Empiricism," in *Handbook of Categorization in Cognitive Science*, ed. Henri Cohen and Claire Leferbvre, (Amsterdam: Elsevier, 2005), 679-695.

It is clear that Hobbes thinks that the sensible qualities play an important psychological and epistemological role. Phenomenal qualities are the means by which perceivers distinguish between and compare objects of perception. In *De Corpore* Hobbes claims that natural science must begin by seeking out the causes of appearances or phenomena of nature, but the phenomena of sense experience itself clearly holds a peculiar place: "Of all the phenomena or appearances which are near us, the most admirable is apparition itself, τὸ φαίνεσθαι [*to phainesthai*, "apparitions"]; namely, that some natural bodies have in themselves the patterns almost of all things, and others of none at all" (*De Corpore* xxv.1). Those special natural bodies that have the "patterns" of things in themselves are sentient perceivers—bodies, with sensory organs fit for receiving motion from other bodies, and retaining those motions within themselves by the imagination. Sensate beings contain the patterns of bodies in their environment because those bodies *impress* themselves upon perceivers by their activity and motion. The "apparitions" and *to phainesthai* to which Hobbes refers are nothing other than the corporeal images, informational states (or sense-records) impressed onto the surfaces of the organs by the causal action of the objects of sense and transmitted to the interior of the perceiving organism. These states (as I argued in the previous chapter) are intentional states (capable of misrepresenting the perceiver's environment) in virtue of their functional role, determining judgments of discrimination and similarity. The perceiver makes these discriminations by way of the patterns and appearances the objects of sense impress upon the sensory system. The extra-mental bodies themselves, by generating sensible qualities within us, cause us to discriminate and distinguish between them:

> But *effects* and the *appearances* of things to sense, are faculties or powers of bodies, which *make us distinguish them from one another; that is to say, conceive one body to be equal, like or unlike to another body;* as in the example above [i.e. the example at *De Corpore* i.3 of the computation of the idea of a man], when by coming near enough to any body, we perceive the motion and going of the same, we distinguish it thereby from a tree, a column, and other fixed bodies; and so that motion or going is the *property* thereof, as being proper to living creatures, and a faculty by which they make us distinguish them from other bodies (*De Corpore* i.4; the second set of italics are mine).

The bodies out there in the distal environment are themselves moving and acting and being acted upon in a variety of different ways. Small snatches of this information are captured by the sensory system and register in conscious perceptual experience as appearances and phantasms of sense, or the experienced sensible qualities. Sense experience is caused by the operation of physical bodies, but sensory experience itself is the "*seeming* or, *fancy*" of that motion "and consisteth, as to the Eye in a *Light*, or *Colour figured*; To the Eare, in a *Sound*; To the Nostrill, in an *Odour*; To the Tongue and Palat, in a *Savour*; And the rest of the body, in *Heat*, *Cold*, *Hardnesse*, *Softnesse*, and other such qualities, as we discern by *Feeling*" (*Lev*. i, 22: 23-27). In effect, the sensible qualities are empirical modes of presentation. They are the ways or manners in which the objects of perception *present* or *register* in our conscious awareness. Although the content of our sense experiences are the bodies external to the mind, the presentation of perceived objects in sense experience, in full phenomenal richness and specificity, is

nothing but the *manner* in which those bodies are presented or registered in conscious awareness. As Hobbes puts it in *Human Nature*:

> By our several *organs* we have several *conceptions* of several qualities in the objects; for by *sight* we have a conception or image composed of *colour* and *figure*, which is all the notice and knowledge the object imparteth to us of its nature by the eye. By *hearing* we have a conception called *sound*, which is all the knowledge we have of the quality of the object from the ear. And so the rest of the senses [sc. experiences of the other sense modalities] are also conceptions of several qualities or natures of their objects (*HN* ii.3).

The sensory "images" are, in effect, empirical modes of presentation or guises under which sensible bodies register in the consciousness. The contents of sense perception are bodies, but the perception is effected by way of the sensory images and phantasms; we take "notice" of the bodies in our environment by means of the phantasms the bodies cause within us. Illuminated bodies, for example, "make us" take visual notice of them. By generating pulses and waves in the medium, they press onto our eyes and optic nerves.[54] This motion is transmitted, by the familiar story, to the brain and heart and thereby we experience a phantasm of light. Illuminated bodies are noticed and distinguished from non-illuminated bodies by this phantasms which they generate within us; just as we call an object "moving" because it is appears in sense experience as a thing coming and going, so "it is by reason of this phantasm that an object is called lucid" (*De Corpore* xxvii.2).

[54] See Jan Prins "Hobbes's theory of light and vision," 130-134.

This point that we "take notice" of real, physical bodies by their empirical modes of presentation surfaces in Hobbes's statement of method in *De Corpore*. There Hobbes announces his general agreement with the empirical method of Aristotle: scientific knowledge must begin with the appearances, "better known to us," and work its way to the causal explanations of the phenomena, "better known by nature," in which genuinely scientific, universal knowledge consists.[55] The knowledge of effects by a knowledge of their causes and production is "the science of causes, or, as they call it, of the διότι [τοῦ διότι]. All other science [alia cognitio], which is called the ὅτι [τοῦ ὅτι], is either perception by sense, or the imagination, or memory remaining after such perception" (*De Corp.* vi.1). The science of *to dioti* (the "because," the "why", "that through which") comes after the knowledge of *to hoti* (the "that"). The former sort of knowledge is "better known to nature," because it would amount to properly scientific knowledge of universal law. The latter is "better known to us" and is the "notice" we have of physical objects by the awareness of their sensory presentation in sense perception. Our apprehension of the *that* acquired in sense experience, as it turns out, must be prior and better known to us because of the way we come to know things by sense experience:

> It is common to all sorts of method, to proceed from known things to unknown; and this is manifest from the cited definition of philosophy. But in knowledge by sense [*In cognitione autem sensuum*], the whole object is more known *[totum phænomenon notius*], than any part thereof; as when we see a man, the conception

[55] See *Posterior Analytics* II.19.99b26 and also II.19.99b34; cf. *Physics* I.1.184a10: "The natural way of doing this is to start from the things which are more knowable and obvious to us and proceed towards those which are clearer and more knowable by nature." (Translation by R.P. Hardie and R.K. Gaye, in *The Basic Works of Aristotle*, ed. Richard McKeon (New York: Random House, 1941; Modern Library Paperback, 2001), 218).

> or whole idea of that man is first or more known, than the particular ideas of his being *figurate*, *animate*, and *rational*; that is, we first see the whole man, and take notice of his being, before we observe him in those other particulars. And therefore in any knowledge [*cognitione*] of the ὅτι [τοῦ ὅτι], or that anything *is*, the beginning of our search is from the whole idea; and contrarily, in our knowledge of the διότι [τοῦ διότι], or of the causes of any thing, that is, in the sciences, we have more knowledge of the causes of the parts than of the whole (*De Corp*. vi.2).

Hobbes's main point here is to illustrate a point about methodology, but imbedded within are his views on sensory qualities and perceptual experience. Sensory qualities are modes of presentation by which we "take notice" of the being a physical object. Our perceptual experiences are our knowledge of *to dioti*—the *that*.

The conceptions of perceptual experience—the "images" composed of light and color and the other sensible qualities—when copied into the imagination, are in effect individual concepts. Although there are real features of the objects of perception (what Hobbes calls in *De Corpore* "properties") that cause the generation of phantasms and appearances by which we "take notice of their being," compare and distinguish them, these features of bodies should not be thought of as properties and accidents shared by many distinct individuals. It must be remembered that Hobbes is a hard-core nominalist. On his view there is nothing (really) universal and common to the many particular, individual things which make up the extra-mental world, except names and they are common to many things according to rules of use. I return to the topic of names and universals in a later chapter, but I want to draw attention to the implications this

nominalism has for his theory of the content of non-linguistic ideas and conceptions. Because there are no universals *ex parte rei* except names that apply to many individual things, there can be no conceptual thought—in the sense that there is no classificatory, universal thought *about many things, under a general aspect*—without the use of universal names in propositions and syllogisms. This is, as I noted at the outset, just what Hobbes thinks reason is (and it is the sense in which the "made with words" thesis is correct). Hence, pre-linguistic human thought and non-linguistic animal thought is non-conceptual in the sense that it is always *represents particulars*, not universal things, because particulars are the only real things out there to be represented. Yet the phenomenal appearances we have of the objects of perception play an important foundational role in the formation of concepts. The objects of perception, by their "divers" operations upon our bodies, yield the different conceptions and phantasms of themselves in us. The sensible qualities allow us to identify and distinguish between the objects of perception and to apprehend the same object under various empirical presentations. Thus, although each idea in the imagination, copied from the sensory presentations of the objects of perception, is an idea of a particular individual, nevertheless a kind of loose and germinal form of categorization is possible. The improperly named Red Delicious apple, for example, is recognizable by means of its color. I can identity that apple cultivar (and resolutely avoid it) because of how the fruit present themselves in perceptual experience: they *look* a deep red color. I can, furthermore, use the sensible qualities of Red Delicious apples in their empirical mode of presentation (the way they look, their texture, smell, and taste) to distinguish them from the far superior Fuji variety. Sentient beings rely on the appearances and fancies of the

sensible qualities to navigate their environment. Light and color, smell, sound, tastes, and textures *track* real properties of the extra-mental bodies; they are informational states, causally covariant with accidents and properties of the objects of perception (they are the sense-records which I discussed in the last section). But these objects are *individuals* with their own *peculiar* structure and motion. Each idea of an individual object presents that very same object under different empirical modes, corresponding to the different phantasms the object wrought upon the sensory system by its "divers motions." Hence, the sensible qualities are the means by which we are able to recognize and distinguish distinct objects of perception, to note similarities and differences between them; this capacity carries over by the Copy Principle to the ideas and conceptions of the objects of perception, when they are retained in the imagination.

The importance of the phenomenal qualities to the formation of conceptions and ideas is a consequence, in fact, of Hobbes's concept empiricism and its commitment to the Copy Principle. An example Hobbes uses in the "Third Set of Replies" illustrates the point. Objecting to the argument of Descartes's "Third Meditation," which invokes the idea of God, Hobbes uses the example of the ideas of a man and of a chimera to illustrate his point:

> When I think of a man, I am aware of an idea of image *made up of a certain shape and colour*; and I can doubt whether this image is the likeness of a man or not. And the same applies when I think of the sky. When I think of a chimera, I am aware of an idea or an image; and I can be in doubt as to whether it is the likeness of a non-existent animal (AT VII: 179; CSM II: 126; my emphasis).

I will return to Hobbes's complaints here when I discuss his views on the idea of God, but what is relevant to the present topic is the insistence on the "modal specificity" of the idea of the man and chimera. Thinking of a man is to raise an idea or image of the man "made up" in some sense of a shape and color. Hobbes does not specifically say so here, but the color and shape of the idea or image is, no doubt, the imagination's copy of some perceptual experience of some particular man. The sensible qualities of color and shape by which a perceiver originally took notice of him in perceptual experience are now features of the idea, by which one can consider and think of that man, picking him out *in thought* and comparing him, by that idea, with future perceptual experiences of other people. It is, furthermore, a copy of a *particular* man and the specific sensible color and shape that he and his peculiar accidents caused.

Or consider again, my conception of Archie, the Scottish terrier. An *oily tactile impression*, a *black visual experience*, an *offensive smell*, a *loud barking sound* – these are sensory qualities by which I pick out *Archie*. The suite of these phenomenal qualities together constitutes my perceptual awareness, notice and knowledge *of that* (*hoti*) *dog*. It is an idea or image, an individual concept of that particular dog, enabling me to pick him out and to recognize him. I know that *that* is Archie by the sensible qualities his presence causes. The sensory qualities he causes are his "mode of presentation" and I pick him out *by means* of these sensory qualities. The oily tactile experience and rank odor of my filthy dog is my "notice" and knowledge of him. That's the *manner* of my conception of him, by touch and by smell. He registers in my conscious awareness *as oily* and *as rank*. My imagination retains this perceptual image when he is no longer affecting my senses, thus becoming an idea or an iconic mental representation (an image "composed" of a

particular shape, color, smell, etc., retained from sense experience). An idea or conception copied from these sensory experiences is a mental representation that allows a sentient being to *think about* an extra-mental object; the sensible qualities are essential to the idea's capacity to serve this role. Functionally, what makes this idea a representation of Archie is that it plays this causal role in my overall psychology and behavior, but the idea can perform this role only in our cognitive lives by the sensible qualities. This is simply in the nature of the human cognitive apparatus. Simplifying somewhat (because I am leaving aside the causal-functional side of the story) I think about my filthy dog by recalling an iconic perceptual representation of him. The idea presents Archie under one of his empirical guises—unpleasantly stinky. If I am not considering a dog with *that* sensible quality, then I am not thinking about *him*.

Yet, given this the obvious importance Hobbes attaches to the phenomenal qualities—and must so-attach, given the imagism implied by the Copy Principle—their ontological status and nature appears deeply puzzling. This is because Hobbes is also quick to claim that the sensible qualities are *nothing but* motions in the brain and to "the fancy" they are colors, smells, etc., and *as* these appearances and fancies they are *nothing at all.* But are they motions or are they nothing? And if sensible qualities are nothing at all, how do they play such a large role in the economy of the mind? The resolution to this puzzle is to take Hobbes's reductionist language very seriously.

Hobbes's austere ontological commitments (there are only bodies in motion) make a mind-body identity theory a naturally appealing view (if there are minds, they are bodies, or motions of those bodies), and in every major statement of his philosophy of mind, he announces this reductionist program. In *Leviathan* i, 22: 23-27 as we have seen,

Hobbes argues that all sense is caused ultimately by the pressing of an external object upon the organs of sense (whether immediately, as in the case of touch and taste, or via the medium, in the case of sight, smell, and sound), which motion is propagated by "the mediation of nerves and other strings and membranes of the body" to the heart and brain. At the conclusion of this paragraph, Hobbes claims that "Sense in all cases, is nothing els but originall fancy, caused (as I have said) by the pressure, that is, by the motion, of externall things upon our Eyes, Eares, and other organs thereunto ordained" (*Lev.* i, 24: 14-16). This claim that the seemings and fancies, the appearances of light, color, sound, and the other sensible qualities, which are "original fancy" and the source for all our conceptions and ideas, are caused by the actions of extra-mental bodies on the sensory apparatus, sounds superficially like an endorsement of the kind of sense data theory against which I argued in the last chapter. But in what immediately follows *Leviathan* i, 22: 23-27 (which I quote here again for convenience), Hobbes makes it clear that he has an *identity* claim in mind:

> All which qualities called *Sensible* [sc. light, color, sound, smell, hardness, softness, heat, cold, etc.] are, in the object that causeth them, but so many several motions of the matter, by which it presseth our organs diversly. Neither in us that are pressed, are they *anything else*, *but divers motions*; (for motion, produceth nothing but motion.) But their appearance to us is Fancy, the same waking, that dreaming (*Lev.* i, 24: 1-5; the second set of italic are mine).

Hobbes here is claiming that the sensible qualities (the colors, lights, smells, tastes, etc., that we experience in sense perception) are, that is, *are identical with*, motions: in the object of sense, they are motions of its parts by which it induces the perceiver to

distinguish it from other bodies; in the sentient being, they are motions in the heart and brain. Light and color, and all the other "fancies" and "seemings" are, in reality, *nothing but* motions in the body. Hobbes is not saying that the motions in the body *cause* sensory experiences of light, sound, smell, taste, but that they *are* the motions. The sense of light, for example, is the "original fancy" of light caused by the action of an illuminated body on the "organs thereunto ordained." But he does not mean that the illuminated body causes motions in the sentient, which *in their turn* cause the sensory experiences; rather, he's claiming that when we see an illuminated body, we have a perceptual experience of light caused by the body, because the perceptual experience (the light fancied) *is* a motion caused by the illuminated body.

Hobbes makes the point that the phenomenal qualities of perceptual experience are identical with motions in the body in *Human Nature* too, claiming there:

> [The] subject wherein colour and image are inherent, is *not* the *object* or thing seen … [that] there is nothing *without us* (really) which we call an *image* or colour … [that] the said image or colour is but an *apparition* unto us of the *motion*, agitation, or alteration, which the *object* worketh in the *brain*, or spirits, or some internal substance of the head … [and that] as in *vision*, so also in conceptions that arise from the *other senses*, the subject of their *inherence* is not the *object*, but the *sentient* (*HN* ii.4).

This passage contains four critical points. First, the sensible qualities are not real properties of the objects of sense; second, there is at all nothing in the extra-mental world that really has the sensible qualities perceptual experience present; third, the phenomenal qualities are "apparitions" of the motions in the brain; fourth, the perceiving subject is the

thing in which the qualities "inhere." These points together entail a very strong identity claim about the sensible qualities. The patterns wrought upon the sensory apparatus of the perceiving organism are nothing but motions, which reverberate within the organism; yet, though they are in reality motions within the body they are also, in appearance, the phenomenal qualities of perceptual experience. Thus sensible qualities just are motions in the brain and body. But their appearances (the phenomenal presentations of color and shape, etc.) are *not real at all*, except insofar as they *just are* motions in the body.

The account in *Human Nature* also contains a very detailed account of the empirical evidence that he takes to support the unreality of the sensible qualities and this evidence also favors his mind-body identity thesis. One of his favorite examples is the production of phosphenes by manual stimulation:

> For [proof of] the third [proposition in the list given at *HN* ii.4, that the visual image is an apparition of motion in the brain] we are to consider that upon every *great agitation* or *concussion* of the *brain* (as it happeneth from a stroke, especially if the stroke be upon the eye) whereby the optic nerve suffereth any great violence, there *appeareth* before the *eyes* a certain light, which light is *nothing without*, but an apparition only, all that is real being the concussion or motion of the parts of the nerve; from which experience we may conclude, that *apparition of light is really nothing but motion* within … image and colour is but an apparition to us of that motion, agitation, or alteration which the object worketh in the brain or spirits, or some *internal* substance in the head (*HN*. ii.7).

The visual experience—the visual "image" composed of light and color—*just is* motion in the brain. The phosphene phenomena illustrates this because the visual experience of

light one has when one perceives an illuminated body and the visual experience one has when one's optic nerve "suffereth any great violence" is, phenomenally speaking, the same sort of experience. He is very explicit about this in his discussion of phosphenes (and similar phenomena) in *Leviathan*: "And as pressing, rubbing, or striking the Eye, makes us fancy light; and pressing the Eare, produceth a dinne, *so do the bodies we see, or hear, produce the same by their strong, though unobserved action*" (*Lev.* i, 24: 5-8; my emphasis). The phosphenes are visual experiences of light, or points of light, "appeareth before the eyes," flashing and floating as experiences of light generated by real illuminated bodies would also. The phenomenal experience of light which we have when we experience a phosphene is *the same* phenomenal quality type that we experience when we actually *see* an illuminated object. But the phosphenes and the light which appears when we see an illuminated object are experiences of *light*; hence neither light is real, for "all that is real" is the motion in the nerve

Phosphenes, afterimages, reflections, echoes, and perceptual illusions—Galilean stock-in-trade of the seventeenth-century mechanist's anti-scholasticism—are taken by Hobbes as empirical evidence of a radical appearance/reality distinction and also of the inherence of the phenomenal qualities in the perceiver. For instance he claims that "the *heat* we feel from the fire is manifestly in *us*, and is quite *different* from the heat which is in the *fire:* for *our* heat is *pleasure*; but in the *coal* there is no such thing" (*HN* ii.9). The phenomenal quality of heat—"our heat"—is a species of pleasure (and presumably an intense enough heat would be a species of pain). But heat itself—in the fire, or the hot coals—is not a pleasure, but a rapid motion. The sensible quality is not only "very different from the heat which is in the fire," it is also "manifestly in us" and not a real

accident of any external body. The same considerations apply to all the sense modalities. "As colour is not inherent in the object, but an effect thereof upon us," Hobbes argues, "so neither is *sound* in the thing we hear, but in ourselves," and so on for smell and for taste (*HN* ii.9; also *Lev*. i, 22: 23-27 and 24: 1-16). Hobbes was quite fond of the paradoxical ring of this account. Summing up the foregoing considerations, he puts the matter in *Human Nature* this in memorable way:

> And from hence also it followeth, that *whatsoever accidents* or qualities our senses make us think there be in the *world*, they be *not* there, but are *seemings* and *apparitions* only: the things that really *are* in the world without us, are those *motions* by which these seemings are caused. And this is the *great deception of sense* (*HN* ii.10).

The deceit the senses perpetrate is not that of fooling us, globally, into believing that there are bodies, when bodies do not in fact exist. Nor does Hobbes intend to question the empiricist thesis that sense perception puts us into contact with an external reality. In Hobbes's case, the objects of sense literally *press* themselves onto us. So typically Cartesian worries about whether sense perception might represent nothing real do not vex him. Sense perception represents bodies; the phenomenal qualities of experience are representations of the qualities of the body. The confusion which sense engenders is that the phenomenal qualities appear to us *as if* they were real properties of the bodies (gilded and stained).[56] That, Hobbes thinks, is empirically falsified by the aforementioned

[56] Stephen Darwall "Normativity and Projection in Hobbes's *Leviathan*" *The Philosophical Review* 109 (2000): 313-347. Darwall argues ("Normativity and Projection" 321-323) that Hobbes is a "projectivist" about color (and by extension, the other sensible qualities). Colors, the sensible qualities we experience, are not properties of the extra-mental world, though our visual experience *presents* colors *as* real, categorical properties of bodies. Darwall seems to want to deny that color, for Hobbes, has any basis at all in extra-

experiments. Thus, although sensible qualities are representations of qualities of extra-mental bodies, this is not something that can be directly introspected. Images and phantasms always present themselves as external phenomena, not as internal events. Hence, the deception of sense is "by sense *corrected:* for as sense telleth me, when I see *directly*, that the colour seemeth to *be* in the object; so also sense telleth me, when I see by *reflection*, that colour is not in the object" (*HN* ii.10).

I have been arguing that according to Hobbes the perceptual "image"—perceptual experience laden with phenomenal qualities—is identical with a motion in the brain. When we see a visible body, we have an image. The image, as I understand Hobbes, is simply the visual experience of seeing that body. The image, though really nothing but a motion in the brain, appears as a figure composed of light and color, etc., external to the perceiver's body. It is important to Hobbes's view that the image, as an appearance of color and light, is *nothing*, though as motion it inheres in the body of the perceiver. So, for example, according to Hobbes's theory, to have a red phantasms—the visual experience of seeing red—is to be in a certain, complex bodily state. The red phantasm is identical with that motion, however the motion is not *red-colored*. Nothing, strictly, *has that color*. Hobbes is not claiming that when we have a visual phantasm of a red apple,

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mental reality, and so to deny that Hobbes holds a Lockean "dispositional" theory of the metaphysics of color. As I see it, Hobbes can be *both* a projectivist about the *sensible quality* of color and give a dispositional account of the physical realities, which underwrite the phenomena. So, while it is true that the color one *experiences* when one sees a red apple does not have any objective reality (the *red color* one experiences is not *in* the apple, because it is not *anywhere*), nevertheless Hobbes does hold that the apple has *some* causal property and the human brain has *some* causal property such that, when in normal lighting conditions, red apples will *appear as red things* to normal human observers. It is in virtue of these complex causal relationships that we are able to visually distinguish Red Delicious apples from the far superior Fuji variety (Sensible qualities are *representations* of qualities *of bodies*, after all; see *De Corp*. i.4, iii.3, xxv.10. Light and color, for example, are phantasms *in* the sentient; *but* the object of sight *is lucid* and *is colored*, which causes the phantasms, by which they are discriminated from one another; see also *De Corp.* ii.7 and 29 on the physical causes of sensible qualities and sensible phenomena: the phantasm of sight is called "light" because it comes by a "lucid body" (xxvii.2) for example.).

there's a little red apple-shaped image in the brain. The thing "composed of light and color" that we experience in phenomenal conscious is not really a thing of itself. And nothing "internal" to the head has to "look" at this image in order to perceive the visible thing. This is why he insists that the image (the perceptual experience) *just is* a motion, but *is to the fancy* a reddish color, a bright light, a savory bacony smell, etc.

This is something Hobbes sometimes likes to emphasize with one of his dubious little Greek and Latin etymologies. For example, In *De Corpore* xxv.10, after claiming that the "object of sight, properly so called, is neither light nor colour, but the body itself which is lucid, or enlightened," Hobbes continues later in the paragraph:

> Motion, rest, magnitude, and figure, are common both to sight and touch; and the whole appearance together of figure, and light or colour, is by the Greeks commonly called εἶδος, and ἐίδωλον, and ἰδέα; and by the Latins, *species* and *imago*; all which names signify no more but mere appearance (xxv.10).

Hobbes gives many of these etymologies, which serve a number of ends, some of them obviously rhetorical. In this particular instance the etymology is directed at making two points. First, it deflates the notion of an *edios* or Form, by making them mere mental "images," creatures of the mind rather than the long bones of the eternal, changeless skeletal system of Being, or even a "visible species"—they are "ideas" in our modern English sense, *viz*. mental representations or concepts of a thing. His inclusion of *eidōlon* also signals a rejection of the Epicurean, atomistic account of sensation, according to which "images" of fine atomic films are flung off of objects and received by the senses into the soul, which would smack too much of a "visible species" theory of perception for

Hobbes's tastes.[57] Second, and more immediately relevant for our purposes, Hobbes draws our attention to the distinction between the *eidōla* and reality. The point is that that of which we are aware is not *as* it appears. We are aware of the real, physical bodies in our environment by the phantasms, which are representations. Bodies appear to us by means of an image. That image, the *eidōlon* and *imago*, presents the object as an extra-mental body, really having that particular color and figure. The color and shape present in visual experience are features of the *idea*, the "apparition" of the object:

> An IMAGE (in the most strict signification of the word) is the Resemblance of some thing visible: In which sense the Phantasticall Formes, Apparitions, or Seemings of visible Bodies to the Sight, are onely *Images*…, which are nothing reall in the things seen, nor in the place where they seem to bee; nor are their magnitudes and figures the same as that of the object; but changeable, by the variation of the organs of Sight, or by glasses; and are present oftentimes in our Imagination, and in our Dreams, when the object is absent; or changed into other colours, and shapes, as things that depend onely upon the Fancy. And these are the Images which are originally and most properly called *Ideas* and IDOLS, derived from the language of the Greacians, with whom the word Εἴδω signifieth to *See*. They are also called PHANTASMES, which is, in the same language,

[57] Though his system bears obvious affinities with the Epicurus's, Hobbes explicitly distances himself from Epicurus's view on sense perception in the *Six Lessons*: "And for Gassendus, and Sir Kenelm Digby, it is manifest by their writings, that their opinions are not different from that of Epicurus, which is very different from mine" ("Lesson 6," *EW* VII: 342). If Hobbes is the author of the *Short Tract* (see Richard Tuck "Hobbes and Descartes" in *Perspectives on Thomas Hobbes*, ed. G.A.J. Rogers and Alan Ryan, (Oxford: Oxford University Press, 1980), 11-41 and Noel Malcolm *Correspondence*, vol. 2, 874, n.2 for the case that he is not; cf. Timothy Raylor, "Hobbes, Payne, and 'A Short Tract on First Principles'" 44 (2001): 29-58.), then this was in fact his earlier position. Hobbes rejects the atomistic account for a mediumistic theory of light propagation (see Jan Prins "Hobbes's theory of light and vision").

> *Apparitions*. And from these Images it is that one of the faculties of mans Nature, is called the *Imagination* (*Lev*. xlv, 1030: 13-27).

The etymology shows Hobbes's rationale for his use of the terms "idea" and "phantasm" for both the "corporeal image" and the phenomenal qualities of sensory experience. They are "ideas" and "phantasms" because they are apparitions and images—perceptual representations of objects, which *qua* qualitative perceptual experience are *mere appearances*, and which *qua* ideas in the imagination, resemble the "original fancies."[58] The bodies that are the objects of sense perception, appear in experience with colors and other sensible qualities. But these phenomenal presentations of the bodies are merely appearances, phantasms, and fancies. They are *really* nothing, except motion in the body.

The atomist theory that sensory experience is caused by the operations of atomic-films (atomic "images") flung from external objects, Hobbes thinks, is just another version of the old dogma of the "philosophy-schools," for according to these schoolmen: "the thing seen, sendeth forth on every side a *visible species* (in English) a *visible shew*, *apparition*, or *aspect*, or *a being seen*; the receiving whereof into the Eye, is *Seeing*" (*Lev*. i, 24: 19-21). Part of his reason for rejecting the scholastic view (as he understands their view) is that he thinks the notion of a "visible species" entails that the object is perceived by means of little pictures, which resemble the object, emanated into the eye. But just as much he rejects this resemblance thesis, Hobbes is equally hostile to the implicit assumption in the theory that there is some faculty, which gathers up the visible

[58] Hobbes focuses on the case of visual experience, but he applies the term "idea" and "image" to the sensory qualities particular to each sense modality. Defining imagination, for example, Hobbes writes: "And this [image of the thing seen] is it, the Latines call *Imagination*, from the image made in seeing; and apply the same, though improperly, to all the other senses. But the Greeks call it *Fancy*; which signifies *apparence*, and is as proper to one sense, as to another" (*Lev*. ii, 26: 23-26).

species and sees the object by, somehow, *seeing* the resemblance between the object and the species.

It is, indeed, critical to Hobbes's self-understanding of his project that he *is not* making the claim that the object causes visual images that are themselves then perceived and which have a kind of independent ontological status. On Hobbes's view "a being seen" does not cause the visual experience; rather, a visible *object* in *being seen by* an agent causes the visual experience, for the visual experience is simply *identical with* the act of seeing. And this is the key to resolving the apparent queerness of Hobbes's positon. Sensible qualities are appearances, yet they are brain states; they are also nothing but "mere fancy." I propose that we add one further identity claim here to complete his position: the sensible qualities *just are* our *perceiving* the objects of sense.

In *Human Nature*, as we saw, Hobbes claims that the conceptions and phantasms of sense—the phenomenal qualities of our perceptual experience of the world—are our knowledge and our "notice" of the objects we perceive. This is what perpetuates the "great deception of sense." The visual image, for example, that we experience when we perceive an object by sight—the particular "look" of the object—is *all* the knowledge and notice we have of the objects of vision. That is, we cannot "step out" from behind this visual experience to see the object in its unvarnished nakedness. Yet howsoever much this kind of claim may seem like a sense data theory of perception, Hobbes is not claiming that the objects cause a phenomenal image, which perceive directly, mediating our perceptual access to the external world. He does not hold that "a private screen of

appearances intervenes between us and the things we see."[59] The claim that the phenomenal qualities are our notice and knowledge of bodies in our environment is intended by Hobbes as an identity claim. As I remarked above, Cartesian worries about whether we can know that a world exists independent of our perceptual experiences do not worry Hobbes. The objects of perception leave "the patterns" of themselves upon the sensory system by their "divers" motions, which motions just are the phantasms and images of sense. But he very much believes that there is "nothing mysterious about a phantasm, which is a motion in some internal substance of the head, being a pattern of motions in external bodies," though many authors have supposed that he should have seen a mystery here; after all, how could we ever *check* to verify that the phantasmal pattern *matched* the external bodies, "if we could never know anything of an external body except by means of our private patterns of it"?[60]

We are now in a position to see why this question is ill-posed. The phantasms *are* the notice and knowledge we have of external objects by their operation upon our senses. Hence, the patterns that they write upon the sensory system are not a kind of picture that the mind then compares with the object of sense. What Hobbes is telling us in *Human Nature* is that the "conception" of sense experience *is* the "notice" and "knowledge" we have of the nature of a physical body. So although in vision we "have" a conception or image which is "composed" of light and color, this conception—the sensory qualities of light and color—is not itself the object of sight and it is not some further effect of the causal interaction between the perceiver and the object perceived. The perceptual image

[59] Peters *Hobbes*, 82.
[60] Peters, *Hobbes*, 109.

simply is the perceiver's *perceiving* the object. The sensible qualities are motions in the brain and body of the perceiver and that visual experience, the perceptual idea or "image" which is in some sense "composed" out of the phenomenal qualities, is not real. Hobbes insists on this, for it is critical to his theory of perception that the "image" is precisely *not* a little picture that the mind "looks at" when it perceives an object. The image and "apparition" of an object of sense is a pattern wrought by the object in the sense that it is an information-state. It makes no sense, on Hobbes's view, to ask how we can be certain that the pattern in the brain, wrought by the objects of sense, is really a correct pattern. The phantasm is a state caused by the operation of the object of sense; it is the state of *perceiving* an object. And hence, the "pattern" of the object of sense is private *only* in the sense that it is *a particular motion in a particular sentient being*. That is, the red phantasm I have when I perceive a red apple is *peculiar* to me because, as just a simple matter of physics, two numerically distinct perceivers cannot be share numerically identical *physical states*. We should take seriously Hobbes's identification of phenomenal qualities with brain processes and his claim that phenomenal qualities *are* our knowledge and notice of the objects of perception.

I suggest that his view is that a phenomenal quality *just is the act of perceiving* an object of perception and that this act is itself *a bodily act*. As I have been urging, he is claiming that the phenomenal image of perceptual experience is *identical with* the *act* of noticing and perceiving the objects of perception. One of the clearest pieces of evidence for this comes from his *Animadversions upon the Bishop's Reply* in the *Questions Concerning Liberty, Necessity, and Chance*. In this work, Hobbes gives a point-by-point rebuttal to John Bramhall's *In Defense of True Liberty*. Although the debate between

Hobbes and Bramhall began as a disagreement over the existence of free will and the nature of moral responsibility, by the time the *Questions* was written, though it was still ostensibly about freedom of the will, had devolved into an acrimonious conflict in which a diverse range of topics became implicated. This makes the *Questions* an interesting source for the Hobbes scholar, for in it we can see Hobbes deploying his views in active combat. In our present case, Bramhall objects that Hobbes had made the cause of prayer the action of external objects, such as the members of the wider religious community and the sermons of the preachers, whose cajoling and peer pressure prompts the parishioner to pray. Bramhall (as quoted by Hobbes) objects that this view contains two mistakes: "first, to make godly preachers and pious company to be outward objects, which are outward agents; secondly, to affirm that the will is not moved but by outward objects" (*QCLNC*, "Animadversion" xxii, *EW* v: 312). Hobbes's reply to Bramhall's first accusation is what interests us here:

> Is not the preacher to the hearer the object of his hearing? No, perhaps he will say, it is the voice which is the object; and that we hear not the preacher, but his voice; as before he said, the object of sight was not the cause of sight. I must therefore once more make him smile with a great paradox, which is this; that in all the senses, the object is the agent; and that it is, when we hear a preacher, *the preacher that we hear*; *and that his voice is the same thing with the hearing and a fancy in the hearer*, though the motion of the lips and other organs of speech be his that speaketh (*QCLNC*, "Animadversion" xxii, *EW* v: 312; my emphasis).

This is a striking passage. The when we hear the preacher speaking, it is not his voice that we hear; rather, we hear the preacher *himself* and our *hearing him* is identical with *the*

voice—the act of hearing the man speaking *just is* the auditory experience of hearing the speaking man. The phantasm of the preacher's voice, which is partly "composes" the sensory conception we have of him, is—is identical with—the perceptual notice and knowledge we have of the preacher. There are not, as it may have seemed from *Leviathan* i, 22: 17-27 and 24: 1-16 for instance, *two* things—the phantasm of the object perceived, on the one hand, and the perceiving of the object that caused the phantasm, on the other. There is only one and the same thing: the act of perceiving the object. This is a bodily act. A phenomenal quality is a motion in the brain, caused by the action of an object in the perceiver's environment. The perceptual experience of an object (its conception and image), in all its rich phenomenal detail, is the very bodily state of perceiving.

Hobbes's view is reminiscent of a comment J.J.C. Smart once made in defense of his type-identity theory of phenomenal states. Responding to objections to his type-identity theory, Smart points out that in fact, since a sensation just is a brain state, phenomenal qualities and images are not the objects of perception on the type-identity story:

> There is, in a sense, no such thing as an after-image or a sense-datum, though there is such a thing as the experience of having an image … it is like the experience we have when, for example, we really see a yellowy-orange patch on the wall. Trees and wallpaper can be green, but not the experience of seeing or imagining a tree or wallpaper.[61]

[61] Smart "Sensations and Brain Processes" *Philosophical Review* 68 (1959): 141-156 in *Philosophy of Mind*, ed. David Chalmers (New York and Oxford: Oxford University Press, 2002), 65.

Further, Smart argues that according to a theory which identifies perceptual experiences and sensations with states of the brain, "[w]hen a person says 'I see a yellowish-orange after-image,' [or makes some other report about their phenomenal states] he is saying something like this: '*There is something going on which is like what is going on when* I have my eyes open, am awake, and there is an orange illuminated in good light in front of me, that is, when I really see an orange."[62] The yellowish-orange image of the afterimage of the sun is not *itself* a yellowish-orange object, or patch. It is the phantasm and appearance that remains of the *act of seeing* the sun itself. The perceptual experience just is identical with the act of perceiving an object of sense and is a motion of the brain and body. This further tells against the sense data and simple causal interpretations of Hobbes's theory. Light, for example, is not a sense-datum, though a phantasm of appearance and a motion in the brain caused by the illuminated or colored objects, because you do not, strictly speaking *perceive* the light; one perceives the illuminated or colored thing and this perceptual act *is* a perceptual experience and a state of the brain and body. Experiencing red is just the same as seeing red thing. The state of experiencing the sensory quality is some motion in the brain, but it is registered in the conscious awareness as a phantasm, a "seeming" or "fancy" that "seemeth to be some matter without." The phantasms are themselves nothing. They *simply are* the state of noticing and perceiving the objects of sense. I shall argue this point further in the next part of this chapter, but we are now in a position to see why Hobbes is not stuck with an

[62] Smart "Sensations and Brain Processes" in *The Philosophy of Mind*, ed. David Chalmers (New York and Oxford: Oxford University Press, 2002), 64.

epiphenomenalism. He has not ignored conscious mental states; he *identifies* phenomenal states with certain bodily states.

3. The Hobbesian Program and Mind-Body Reduction

But how successful is this reduction on Hobbes's own terms? Is this picture – adjusting for its commitment to seventeenth-century mechanistic physics – a remotely plausible view? I believe it is. First, I wish to consider the ways in which the discussion of this question in the secondary literature is flawed, since this will help to clarify what will count as an adequate answer to this question. It is surely correct that Hobbes does not achieve a reductive analysis of mental states into physical states by way of mechanical explanations (after all, mechanism is a false physical theory and neurotransmission occurs electrochemically, not by push-pull mechanical interactions). Most commentators argue that either he does not actually *intend* to identify mental states with physical states or else that he does so-intend, but that he *cannot* accomplish the task he sets for himself either because he does not really give reductive analyses of mental states or because the proposed reduction is impossible in principle. I strongly suspect that many of these commentators are confusing a reductive analysis with an *eliminative* reduction. However, I wish to focus here on a different issue. Many of these arguments are based on an implicit premise that is related to this confusion. The assumption is that (obviously) mental states cannot be reduced to physical states because they are just of *radically different* metaphysical natures.[63] This Cartesian assumption pops up repeatedly and

[63] I am in agreement with the diagnosis of Tommy Lott ("Hobbes's Mechanistic Psychology") and my discussion draws on his. I disagree with Lott over the relevance of *conatus* to this issue (see below).

sometimes with explicit reference to Descartes's authority. For example, although correctly apprehending the outlines of Hobbes's defense against the charge of panpsychism (which I have explicated in detail above), Tom Sorell claims this defense is unsuccessful because his mechanistic concepts "are not cut out for making a sharp distinction between animate and inanimate matter" and that his "hypotheses couched in the preferred [sc. physical] terms appear to change the subject."[64] Sorell continues: "*the thought that vital, let alone mental processes, might be irreducible, seems never to occur to him*, with the result, as we have seen, that the boundary between the animate and the inanimate, and between bodies with minds and bodies without, is hard to discern."[65] And so "something like Descartes's objection [sc. that the mental and the physical are of "different natures"] is right."[66] Notice that Sorell implies that the Cartesian view is the commonsensical one, which ought (of course) to seem compelling to everyone and that (of course) the boundary between animate and inanimate ought to be demarcated by a bright, shining line. Further, as is confirmed by a comment in a note to this discussion—"[p]anpsychism seems to follow from premisses [sic] that are commonplaces of current physicalist literature in the philosophy of mind"[67]—Sorell just seems to assume that Descartes in the right: mental states and their properties, and physical states and their properties are of different metaphysical natures (but I am not sure which commonplaces of nineteen-eighties physicalist literature he has in mind).

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[64] Sorell, *Hobbes*, 75. I note once more that as late as 1676 Hobbes appears to still be considering the issue of panpsychism, if the *Prose Life* is any indication.
[65] Sorell, *Hobbes*, 75, my emphasis.
[66] Sorell, *Hobbes*, 68
[67] Sorell, *Hobbes*, 149, n. 3. Sorell cites Thomas Nagel *Mortal Questions*, (Cambridge: Cambridge University Press, 1979), 181-195 as the source for this claim.

A similar claim is made by J.W.N. Watkins, who, like many other writers, notes that Hobbes's political and ethical theory appear to be logically independent of his physics and argues that this is evidence that Hobbes is confused about his own metaphysics of the mind, asserting that "Hobbes claimed to be an uncompromising materialist, but his account of the mind is really an epiphenomenalist rather than a strictly materialist one. He actually treats thoughts and feelings as the shadows and overtones of movements of the brain and heart, though he claims they *are* movements."[68] And Bernard Gert has argued that Hobbes's reliance on introspection in his psychological analyses, e.g. his analyses of the passions, shows that "Hobbes's psychology is almost completely independent of his mechanism" for, if mechanism were true, "we could never discover *what it was like to hope or fear by introspection*."[69] Notice that Gert's argument seems to be a weak version of the "Knowledge Argument"—since I can know what it's like to experience fear by reflecting on my experience, but I cannot know what's happening in my brain when I experience fear using the same method, the brain state's properties and the phenomenal state's properties are different sorts of properties—which presupposes property dualism.[70] Again, the assumption is that the mental is just *not* the physical;

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[68] "Philosophy and Politics in Hobbes," in *Hobbes Studies*, ed. K.C. Brown (Cambridge: Cambridge University Press, 1965), 251. See also "Philosophy and Politics in Hobbes," *Philosophical Quarterly* 5 (1955), 136.

[69] "Hobbes and Psychological Egoism," *Journal of the History of Ideas*, 18 (1967), 108. My emphasis. More recently Gert has argued that, in *Leviathan* at any rate, Hobbes held an epiphenomenal view of delight and pain (see "Hobbes's Psychology" in *The Cambridge Companion to Hobbes*, ed. Tom Sorell (Cambridge: Cambridge University Press, 1996), 160.

[70] See Frank Jackson "What Mary Didn't Know" *Philosophical Quarterly* 32 (1982): 127-136. See Ned Block "Max Black's Objection to Mind-Body Identity" in *Collected Papers*, (Cambridge, MA and London: Bradford and MIT Press, 2007), 435-498; reprinted from *Oxford Studies in Metaphysics*, vol. 2, ed. Dean W. Zimmerman, (Oxford: Oxford University Press, 2006) 3-78, and Christopher Hill "In Defense of Type-Materialism" in *Meaning, Mind, and Knowledge* (Oxford: Oxford University Pres, 2014), 79-116. Block "Max Black's Objection" also presents an argument that the Knowledge Argument presupposes property dualism. See J.J.C. Smart "Sensations and Brain Processes" for the argument from property dualism attributed to Max Black.

hence, the mental is irreducibly mental. Again, similar arguments are made by Richard Peters and Henri Tajfel. They more or less explicitly rely on the assumption that mental things are in a distinct ontological category from physical things, for they argue that in invoking *endeavor* (or *conatus*) in his physics and psychology is a logical error, Hobbes is sliding between strictly physical and strictly mental applications of the term (perhaps deliberately).[71] This is an error, I take it, because the mental and the physical are just not supposed to be the same thing.

This brings me to a quick preliminary comment: I am not going to spend much time discussing "conatus." Many different commentators (both friendly and hostile, though for different reasons) dwell on this notion of "conatus" or "endeavor," believing that the concept betrays Hobbes's commitment (unwittingly or not) to the irreducibility of the mental. I shall not discuss "conatus" here because it is a red herring. The writers who place so much weight on the concept in their assessment of Hobbes's materialist philosophy of mind are misled by two factors: first, the Latin 'conatus,' like the English 'endeavor,' has the sense of "exertion" and "striving" which strongly implies goal-directed exertion and striving; second, endeavors in fact do play a role in Hobbes's explanation of animal behavior, which *is* goal-directed exertion. I grant that Hobbes's choice of terminology may have a deliberate rhetorical end, however, there is nothing irreducibly mental about endeavors, connotations notwithstanding. According to the definition of *endeavor* at *De Corpore* xv.2 an endeavor is simply a mechanical

[71] Peters and Tajfel call "endeavor" and other terms of Hobbesian philosophy of mind a "twilight kind of language [that] enabled Hobbes to talk like a physiologist and yet preserve the common touch of everyday experience" ("Hobbes and Hull—Metaphysicians of Behaviour", 83). Also see the discussion in Tommy Lott "Hobbes's Mechanistic Psychology."

principle—a motion of a body made in less space and less time than "can be determined" and is likely an inchoate (and possibly incoherent) notion of an infinitesimal that is supposed to amenable to constructive geometrical analysis.[72]

I want to focus instead on the more interesting point that each of these authors assumes, in one way or another, property or substance dualism. This is a bad assumption for several reasons. By contemporary standards, the assumption is unjustified. It is a well-worked-over point these days that one can recognize the existence of mental *concepts* and recognize that these are different from physical *concepts*, without thereby committing oneself to the existence of two distinct ontological classes of *properties* or *substances*. Hence, the physicalist can admit that, for example, the concept of fear discoverable by introspection and the concept of fear discoverable by empirical cognitive science or neuropsychology (or mechanistic physiology, for that matter) are different *concepts*. They are just different concepts *of the same thing*. I am not suggesting that the substitution of conceptual dualism for property dualism is or ought to be the default position (although, if the alternative is substance dualism, then maybe concept dualism really should be the default). My point is simply that, given the facts of the debate, one cannot simply *assert* property dualism against the materialist without argument because there is a reply waiting in the wings that, on the face of it, looks pretty plausible.

Now, I am aware that Hobbes never read Brian Loar's work.[73] So the more important reason why the property/substance dualism assumption is unwarranted in

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[72] See Douglas Jesseph, *Squaring the Circle: the War between Hobbes and Wallis*, (Chicago: University of Chicago Press, 2000), 102 and ff.

[73] But *De Corpore* iii.4: "[S]ome men seeing they can consider, that is (as I said before) bring into account the increasings and decreasings of quantity, heat and other accidents, without considering their bodies or subjects (which they call *abstracting,* or making to exist apart by themselves) they speak of accidents, as if

criticisms of Hobbes's philosophy of mind is that Hobbes is well aware of the existence of substance dualism as a philosophical position and he does not just ignore it. It absolutely *does* occur to him that mental processes "might be irreducible" for he was sufficiently well acquainted with the Cartesian program to recognize that possibility (he is aware that at least one very intelligent, eminent, non-scholastic philosopher held the position). He just does not think he has any reason to accept that mental processes are irreducible and we can derive an argument to this effect from the dialectical situation, as Hobbes saw it, between Descartes and himself. According to the interpretation I am advocating, Hobbes *does* intend to reduce mental processes and states to mechanical interactions between the various parts of the material substance of the body: cognitive states are individuated by their causal-functional role in the determination of other cognitive states, passions, volition, and behavior insofar as these functional dispositions are *actually* implemented in a physical system and phenomenal states *just are* identical with motions in the body and brain. Indeed, as he reports in his prose autobiography, Hobbes considered this one of his great scientific achievements, declaring (of himself) that "[h]e first demonstrated the nature of the senses in physics" (*Prose Life*, 250; see also 252-53). Hobbes thinks that he has demonstrated the nature of the senses because he thinks that he has given a reductive analysis of perception in terms of the cutting-edge physical science of his day. By comparing Hobbes's position with Descartes's account of the mechanical operations of the human body and animals—which agree with one

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they might be separated from all bodies. And from hence proceed the gross errors of writers of metaphysics; for, because they can consider thought without the consideration of body they infer there is no need of a thinking-body." I note too that Arnauld's objections suggest that Arnauld does recognize the possibility of a "concept dualism" (see Marleen Rozemond, *Descartes's Dualism* (Cambridge, MA: Harvard University Press, 1998). Hence, since at least one seventeenth-century philosopher was in the area, it is not entirely out of the question that Hobbes could have also had his finger on "concept dualism" as a materialist reply to Cartesian conceivability arguments.

another on a significant number of points—Hobbes's reductive intentions and argument can be brought into sharper relief.

As I have argued so far, Hobbes holds that cognitive mental states are causal-functional states and that phenomenal states are simply identical with being in a certain sort of physical state. The latter identity claim counts as a reductive analysis, I should think, by anyone's accounting. But what about the causal-functional story about perception and cognition? Although generally regarded these days as nonreductive, by the lights of a seventeenth-century materialist, mechanist, and nominalist like Hobbes, causal-functional analyses of the mental *would* be considered reductive. Since he rejects the real existence of abstract objects (there are just bodies in motion), the only real causal-functional relations would be the ones *actually* realized in any given body. Furthermore, like other philosophers of the period, Hobbes accepted a basic substance-mode ontology. The only substances according to his materialist ontology are individual, physical bodies, in constant motion. Everything else is just a mode of these bodies and their motions. So, although they would be granted full ontological credentials by a Quinean criterion of existence, "modes"—understood as dispositions, activities, and accidents of substances—do not really have any independent ontological status, since they cannot exist independently of substances. Modes exist, but only as realized in substances.[74] This is one reason why Hobbes insists that although phantasms and

[74] See Stephen Menn "The Greatest Stumbling Block: Descartes' Denial of Real Qualities" in *Descartes and His Contemporaries: Meditations, Objections, and Replies*, ed. Roger Ariew and Marjorie Grene, 185-207, (Chicago and London: University of Chicago Press, 1995). Menn points out that "for Descartes, as for Suárez, a quality can really belong to something, and be really a quality, without being a real quality: Descartes is using *real* consciously and precisely as a technical term. A real quality is a quality that is a *res*; something can fail to be a *res*, even though it is the subject of true predications, if it is a mode or an *ens rationis cum fundamento in re*" ("The Greatest Stumbling Block," 184). Hobbes, I suggest, accepts this basic ontological framework. Body is a *res*; the modes of bodies, like motion, are not.

appearances of sense are nothing and do not inhere in the object of sense, they nonetheless inhere *somewhere*. They inhere in the sentient perceiver, as motions *of* the body of the perceiver. Hence, a causal-functional account of the passions, for example, would be a reductive account according to Hobbes's ontological math. For suppose anger is analyzed as the sudden disposition to overcome an object of fear by force (*Lev*. vi, 84: 20-22), then since this disposition cannot exist except as it is realized *in* some material substance, claiming that anger *just is* this causal-functional state of the body is to reduce the passion to a mode of material substance. We may object to this way of slicing up things, but my point is that this is an implication of the world-view Hobbes accepts. A causal-functional account of a mental state, spelled out mechanistically, would simply be a way of explaining the mental state in terms of matter and motion. This is probably not actually possible, because of the limitations of mechanistic physical explanations; but again, the point is that could such an account be given, it would invoke only material substances and their modes. And that would satisfy Hobbes. By comparing the Hobbesian and Cartesian physiologies of sense and animal motion, we shall find that on the interpretation for which I argued above, Hobbes's philosophy of mind *is* successfully reductive, measured by its own (seventeenth-century) standards. If the reduction fails by our lights, it is nonetheless successful by *his*.[75]

The Cartesian system and the Hobbesian system, though disagreeing on the finer points of physics and physiology, agree in many important general points on the scientific

[75] In fact, the only sense in which I think Hobbes would count his attempted reduction as failure is that his *physics* and *biology* are wrong: the heart has a lot less to do with things than he thought and we now understand that neurotransmission is an electrochemical process, not series of mechanical push-pull interactions between nerves.

nature of sense perception and the relationship to behavior and the passions. Although they differ in particularities of the exact physiological mechanisms at work—Hobbes places a greater emphasis on the role of the heart and denies that the retinal image is identical with the visual image for example[76]—both philosophers agree on the basic mechanisms of the bodily processes involved. According to both the Hobbesian and the Cartesian systems (as we saw in the previous chapter), the vital motions of living organisms and animal behavior are explicable by reference to the mechanical properties of the body.[77] These latter involve sense perception and the formation of ideas in the corporeal imagination. Hobbes is quite happy to think of the processes of sensation, imagination, memory, and (as we'll see) sign-inferences as cognitive processes and to assert that human and animal minds function—physically and cognitively—in the same way with respect to these processes. Descartes will agree that humans and animals undergo these same physiological process and that they enable a biological machine to gather and store information and to react appropriately to its environment. Descartes, however, does not want to count these processes as *mental processes*. That is (as I pointed out in the first section of the last chapter), since they both think that the corporeal imagination and sensation can be explained mechanistically, Hobbes and Descartes agree *up to the point* of consciousness and sentience in the phenomenally rich sense. Here, Descartes gets off of the corporeal boat, insisting that there is a need to posit the existence of a non-material, rational soul, responsible for our sensory experiences (in

[76] Since, among other reasons, no one can see their own retina (while it's attached). See Jan Prins, "Hobbes on Light and Vision," 145. As Prins points out, Hobbes's works on optics and vision all contain (implicit and explicit) arguments and criticisms directed at Descartes's theory of the physiology of vision.
[77] Hence, contrary to what Sorell's discussion implies, drawing a very sharp Cartesian line between conscious beings and non-conscious automata does not thereby render precise the boundary between living and non-living (unless one identifies the property of being consciously aware with the property of being alive) (*Hobbes*, 73-75).

their second and third grades), our capacity to reason, and our powers of volition and judgment. These are, in Descartes's estimation, peculiarly mental processes.

But Descartes thought that animal behavior and animal life *could* be reduced to material processes (as he says in the *Discourse* and at the end of *Treatise on Man*). So, human conscious mental life is the special exception, not the rule. But why exactly can't consciousness, volition, and judgement be reduced to material principles? Descartes's explicit metaphysical reason is that they are of "two different natures." But as Hobbes see it, this is *exactly* the question at issue between Descartes and himself. Hobbes must have believed that the burden of proof fell to Descartes, not himself, for Descartes is the one violating *his* own new scientific principles. Indeed, Hobbes's second objection in the Third Set of Objections contains the accusation that Descartes's argument to the conclusion that the nature of the mind is radically distinct from the nature of the body, simply assumes that a corporeal substance cannot think but does not prove it (AT VII: 173, CSM II: 122). If one leaves aside the arguments of the *Meditations*, then in light of the mechanistic picture of the universe, the Cartesian anti-reductionism can appear to be a stipulative, or even an ad hoc addendum to a scientific theory that was working fine and already scoring genuine empirical successes—an addendum that appears designed to shield that good scientific work from the censorious eyes of the religious authorities.

Evidence that Hobbes himself saw the dialectical situation this way can be seen indirectly by considering the dispute between the two philosophers over issues of priority and plagiarism, and also by Hobbes's repeated attempts to push Descartes into admitting that Descartes's "subtle matter" is identical with his "material spirit." Ostensibly this is about the proper explanation of hardness and softness of a body, but the exchange clearly

agitated Descartes to a greater degree than one would have expected, if the debate were simply a matter of physics or intellectual property rights. As Gianluca Mori has shown, it more likely than not that the issue lurking in the background is really to do with the possibility of the existence of a corporeal God and the expulsion of the immortal, non-physical soul from the universe; Descartes was keen to avoid any insinuation that the mechanistic system of physics might necessarily have these implications.[78] Further indirect evidence comes from the Third Set of Objections which, though commonly thought to present Hobbes in his worst dogmatic "fist-pounding" form, can be seen as the confident assertions of someone who reads his position in the way I outlined above. Hobbes feels the burden of proof falls to Descartes, for Descartes's view is the one which deviates from the standards of mechanistic physics—which appears to revert "back to the scholastic way of talking" (AT VII: 177, CSM II: 125)—and does so, as Hobbes sees it, in the face of physical and empirical facts that give the lie to the Cartesian system. I note that in the Third Set of Objections, Hobbes shifts focus from the question of scientific evidence for Descartes's position (i.e. does the positing of a "rational soul," distinct from the imagination and animal spirits, "salve the phenomena"?) to more fundamental issues of epistemology and the content of ideas. Hobbes recognizes that Descartes's reasons for holding to the existence of an immaterial, rational intellect have more to do with metaphysical reasons, than with scientific ones. In several works (*Discourse* and the *Optics*, for example), Descartes does give what we could call "scientific" or "empirical" arguments for the existence of the rational soul and the thesis that it, rather than the body, is the subject of conscious state. I shall turn to consider one of those arguments below,

[78] "Hobbes, Descartes, and Ideas: A Secret Debate" *Journal of the History of Philosophy* 50 (2012): 197-212.

but bearing in mind that the cutting edge of science—which both men accept—is mechanistic physics, Hobbes seems to have the better of the debate when conducted on these terms. So, the Third Set of Objections focuses on the conceptual issues: Do we actually have a conception of an incorporeal mind, distinct from the body? Can we conceive of God? Does our capacity for reason actually outstrip the powers of the body and the content of the imagination in such a way that would require the existence of a radically non-imagistic rational faculty? And so on.

But there is also some direct evidence that Hobbes sees things this way. In the *Tractatus Opticus II*[79] Hobbes makes an argument that relies on this very understanding of the dialectical situation. The *Tractatus* was composed between 1637 and 1640 and responds directly to Descartes's *Optics*, which Hobbes had obtained a copy of sometime in the fall of 1637.[80] In the *Optics*, Descartes makes the following argument:

> We know for certain that it is the soul which has sensory perceptions, and not the body. For when the soul is distracted by an ecstasy or in deep contemplation, we see that the whole body remains without sensation, even though it has various objects touching it. And we know that it is not, properly speaking, because of its presence in the parts of the body which function as organs of the external senses

[79]Citations to *Tractatus Opticus II* are to F. Allesio, "Thomas Hobbes: Tractatus Opticus" *Rivista critica di storia della filosofia* 18 (1963): 147-228 = Harley MS 6796, ff.193-266. Translations are mine. See Noel Malcolm,

[80] Kenelm Digby writes in a letter to Hobbes from London dated 4[/14] October, 1637: "I come now with this to make good w^{t} j promised you in my last: which is to putt Monsieur des Cartes … his book into your hands" (Letter 27, *Correspondence*, vol. 1, 51). In this same letter Digby wryly notes: "I doubt not but you will say this is a production of a most vigorous and strong braine; and if he were as accurate in his metaphysicall part as he is in his experience [i.e. his phsyics], he had carryed the palme from all men liuing" (Letter 27). By 1640, the *Tractatus* appeared, complete with direct quotations from the *Optics* and by January of 1641, Hobbes and Descartes were exchanging increasingly testy letter to one another, via Mersenne.

> that the soul has sensory perceptions, but because of its presence in the brain, where it exercises the faculty called the 'common' sense. For we observe injuries and diseases which attack the brain alone and impede all the senses generally, even though the rest of the body continues to be animated. We know, lastly, that it is through the nerves that the impressions formed by objects in the external parts of the body reach the soul in the brain (AT XI: 109; CSM I: 164).

The argument is supposed to show that the soul, rather than the body is that which "has" sensory perceptions on (broadly) empirical grounds. First, Descartes claims, when the mind is distracted, or in some sense "withdrawn" from the senses and not attending to them, we lose sensation and perceptual awareness, though the body's sense organs continue to be stimulated by external objects. Second, the mind has sense experiences in virtue of its interaction with the body at the location of the brain, not the peripheral sense organs, for brain damage affects cognition and perception, though the rest of the bodily functions remain unaffected; hence, it cannot be the body which has sense experiences, since it is only when the brain—the principal seat of the soul in its connection with the body—is affected that our perceptual experiences are affected.

But this is an odd argument. The first of Descartes's considerations is not at all conclusive. It is not clear that the fact that one does not consciously attend to sensory stimulation while in, say, deep meditation tends to support the thesis that there is *some other* thing—a soul—which would be doing the sensing of the stimulation, were it not otherwise occupied. Descartes, here anyway, does not give us any compelling reason why conscious attentiveness cannot be *itself* a power of the body. The mere existence of the phenomena does not seem to warrant the certainty Descartes advertises at the start of the

passage—if we know with certainty that the soul is the thing that senses, not the body, that certainty did not come from the sort of considerations raised here. In fact, what Descartes says seems to presuppose that the soul, doing the sensing, is a different thing from the body being affected by objects in the environment.

The second set of considerations is more puzzling, for they actually seem to cut against the conclusion Descartes is trying to establish: that the soul, not the body, does the sensing and experiencing. We are told that we "know for certain that it is the soul which has sensory perceptions, and not the body" because we have good reason to believe that the soul's capacity to sense is due to its union with the body at the location of the brain (its "presence" in the brain), not due its being dispersed throughout the body. And what are these good reasons? That there is an overwhelming correlation between injuries to the brain and disorders of the brain and the diminution or extinction of sensation. There is also our knowledge of the physiology of sensing, which tells us that the nerves convey information about external objects back to the brain, which therefore is likely to be the central processing location. Descartes seems to take these phenomena as evidence that the brain is the locus of the soul. Perhaps with an antecedent argument that there is a separate soul "in there," this would be good evidence that the soul is located in, or connects with the body at, the brain. But the tight correlation between the physical states and dispositions of the brain and its activity, on the one hand, and the phenomenal features of conscious experience, on the other, is on the face of it very strong evidence for the conclusion opposed to the one Descartes draws: the brain's physical disposition and activity are strongly correlated with sensory experiences and phenomenal states because there *is not* a soul, separate from it which "has" experiences and phenomenal states. The

point that the brain is the seat of consciousness is moot. Facts about the effect of brain lesions and so forth on sense experience tend to show that the brain—and not, say, the spleen—is the seat of consciousness. They do not show that there is a *further* entity *seated* there.

Descartes's account of manner in which the soul comes to have sensations and experiences is still more perplexing. Like Hobbes, Descartes is keen to insist that there are no "intentional species" or "visible forms" that slough off of objects and which, in virtue of somehow resembling the objects of vision, cause the mind to form a little picture of the thing seen. "We must take care not to assume," writes Descartes, "that in order to have sensory perceptions the soul must contemplate certain images transmitted by objects to the brain" (*Optics* AT VI: 112, CSM I: 165) and we must resist the temptation to think that because "a picture can stimulate our mind to conceive the objects depicted in it, …[so] in the same way, the mind must be stimulated, by little pictures formed in our head, to conceive the objects that affect our senses" (AT VI: 112; CSM I: 165). Yet, howsoever well advised this admonishment may be, Descartes himself seems to flirt perilously with doing the very thing he warns us not to do. This is especially true of the account in the *Treatise on Man*, where he claims that the rational soul has visual perceptions by "considering directly" the corporeal image of the visible object, inscribed upon the pineal gland (AT XI: 177; CSM I: 106). It is very difficult to understand exactly what the soul is doing when it "considers" the corporeal image, if it is not, in some sense, "looking" at the image (and the qualifier 'directly' is of no help, really, because it is not clear how the soul considers the corporeal image anyway). But in the *Optics*, though the language of "consideration" is not present, the story is essentially the same:

> Now, when [the retinal image (see AT VI: 115-130; CSM I: 166-67)] thus passes to the inside of our head, it still bears some resemblance to the objects from which it proceeds. As I have amply shown already, however [e.g. AT VI: 112; CSM I: 165], we must not think that it is by means of this resemblance that the picture causes our sensory perception of these objects – as if there were yet other eyes within our brains with which we could perceive it. Instead we must hold that it is the movements composing this picture which, acting directly upon our soul in so far as it is united to our body, are ordained by nature to make it have such sensations (AT VI: 130; CSM I: 167).

Descartes is right to say that the soul does not actually *look* at the retinal image to see the object of vision. Instead the soul is "acted upon" by the corporeal image (which is, note, a movement) and this action causes "our sensory perception" of visible objects. But, again, it is not at all clear how the corporeal image acts upon the soul (and again, the qualifier does not help). Further, since the perception is caused by the direct action of the corporeal image *insofar* as it is "united to our body," Descartes's account appears again to presuppose that the soul and the body are different things. Somehow image and soul interact with one another, the soul is not like a little person inside the head, keeping track of the images as they pass through the retina and into the brain. It's just "ordained" that way. Descartes goes on to say that he will "explain this in more detail" (AT VI: 130, CSM I: 167), but the account he does proceed to give in the rest of this passage does not quite explain what it is supposed to:

> All the qualities which we perceive in the objects can be reduced to six principal ones: light, colour, position, distance, size, and shape. First, regarding light and

> colour…, we must suppose our soul to be of such a nature that what makes it have the sensation of light is the force of the movements taking place in the regions of the brain where the optic nerve-fibres originate, and what makes it have the sensation of colour is the manner of these movements. Likewise [similar accounts can be given for the sensations received by other sense modalities] (AT VI: 130-31, CSM I: 167).

This is a sketchy explanation of visual experience by appeal to the physiology of vision, which relies on the observation of correlations between certain brain and nerve states and phenomenal experiences. What we learn from the sketch is that when the optic nerve is agitated in one way, we have one sort of color experience and when it is agitated in another way, we get a different one. But notice that what we did not get is an explanation for how the *soul* is directly affected, such that it "has" these experiences.

I quote these passages from the *Optics* because Hobbes himself discusses them at some length in *Tractatus Opticus II* and this discussion sheds light on his conception of his own project. In the *Tractatus* Hobbes gives his account of the mechanics of optics and vision and takes the opportunity to give an almost *Anti-White*-style point-by-point criticism of Descartes's *Optics*. In this work he makes the claim, reiterated in *Leviathan*, *Human Nature*, and *De Corpore* (though without the reference to "animal spirits"), that "there is nothing real in the appearances except motion or reaction of the spirits in the sentient" (*Tractatus Opticus II* iv.13).[81] To this he adds that the images of visual experience—composed of color and light—"if we wish to speak accurately, they are not

[81] "In apparitione nihil est reale praeter motum sive reactione spirituum in sentiente," 206-07.

the thing seen, or the object of vision, *but the very act of vision*, which really consists only in reaction or motion of the internal parts of the one who sees" (*Tractatus Opticus II* iv.13).[82] That is, the image—the phantasm of light and color, by which a visible thing registers itself in our conscious awareness—just is identical with the *seeing* itself. This act, as I argued in the previous section, is nothing but motion in the sense organs, brain, and heart of the sentient being, a "taking notice" of an object external to the body by means of the senses.[83] The important point is that the account is reductive. Hobbes is precisely not distinguishing, in other words, the three grades of sense perception: the conscious experience of vision, or the phantasms of the senses, simply are nothing other than the very act of seeing itself. And this, the act of seeing in the first grade, as Descartes himself concedes, is explicable mechanically. Animal sensation, by which they successfully navigate their environment and by which their behavior is governed, is reducible to matter in motion. What Hobbes argues is that *that is it*. Beyond perhaps specifying precisely *which* motions in what parts of the body are responsible for what experiences (a question left for William Harvey and the other anatomists and physicians), there is nothing left to be explained. There is no need to posit the existence of a soul which "has" the consciousness and the perceptual experiences, because the perceptual experiences are motions of the sentient being's body. The *body*, in other words, "has" the experiences. But this is a fully reductive account. Presuming—and that is a big

[82] "Quare *species*, *imago*, *color*, *lumen* et quaecunque sunt imaginis partes, non sunt, si accurate loqui velimus, res vise, aut obiecta visus, sed ipse actus visionis, qui consistit realiter in sola reactione sive motu partum internarum videntis," 206.

[83] And again, he is clear that the *image* is not the thing which we perceive and cognize in vision, but that *by which* we come to cognize and perceive the thing seen: "Eodem modo loquendum est 'de cognitione per visionem' est enim imago res visae proprie loquendo non res cognita, sed ipsa cognitio" ("In the same way (or manner) is 'cognition through vision' is to be spoken, for the image of the thing is not, properly speaking, the thing cognized, but the cognition itself") (*Tractatus Opticus II* iv.13, 206-07).

presumption—the mechanistic reduction of animal life is successful, then we would have, *eo ipso*, the explanation of sense experience and phenomenal consciousness. Seeing is a complex bodily act, involving memory and judgment, and the phenomenal experience of seeing is just identical with this complex act, realized in the body.

The argument in the above-quoted passage from the *Optics* is the direct target of Hobbes's argument in *Tractatus Opticus II* iv.14. In this passage Hobbes argues that the identity of the corporeal image with a motion in the brain or body of an animal, entails that the thing which has the image must be a body. "Since," Hobbes argues, "vision is, formally and really, nothing at all except motion, it follows that, formally and speaking accurately, that which sees is nothing else besides what moves, certainly a corporeal something; certainly nothing except body—indeed matter, endowed with dimensions and a circumscribable place—has the power to move" (*Tractatus Opticus* iv.14).[84] So, Hobbes points out that if animals can see, in whatever special sense of "seeing" we ascribe to them, it follows that "seeing" (the act of seeing) can be ascribed to body after all.[85] Hobbes then directly quotes and denies Decartes's claim in *Optics* that we "know for certain that it is the soul which has sensory perceptions, and not the body." This may come across as just more Hobbesian fist-pounding, until one realizes that this point is something that Descartes himself agrees to, so long as "vision" and "seeing" are confined

[84] "Cum autem visio formaliter et realiter nihil aliquid sit praeter motum, sequitur etiam videns formaliter et accurate loquendo aliud non esse praeter id quod moventur, nempe corpus aliquod; nihil enim praeter corpus, nempe materiatum, dimensionibus praeditum et loco circumscriptibile, moveri potest," 207.
[85] "Siquidem ergo animalia videre possunt, id quod in ipsis proprie et adaequate *Videns* dici potest corpus est aut ergo non est anima id quod videt in brutis aut anima movetur, et proinde est corpus," (Therefore, since indeed animals can see, "seeing" can be said, proper and adequate to what is in them, to happen in the body or, accordingly, not to happen in the soul — what sees in brutes or rational animals moves, and hence happens in the body), *Tractatus Opticus II* iv.14, 207). My thanks to Michael Augustin for his invaluable assistance in the translations.

to the first grade of sensory perception. Descartes confines the sense in which the body "sees" to the first grade of perception, because he ascribes the conscious aspects of sensory perception to the soul and its connection to the body. But the only arguments Descartes gives in the *Optics* are scientific arguments appealing to the empirical fact that disorders of the brain affect sensory perception and deep meditation suppresses conscious awareness of peripheral stimuli (AT VI: 109, CSM I: 164-65). As we saw, these are weak and inconclusive. They certainly point to an intimate connection between the activity of the brain and sense perceptions, yet stop short of the natural conclusion, that the perceptual experiences just are activity in the brain, and Hobbes turns his attention directly to them. He counters, as one would expect, that these phenomena can be accounted for in terms of mechanical interactions in the body—either a slowing of the motions of the animal spirits, or of the brain, or heart, caused (ultimately) by the action of some external force on the body—without the need to posit the existence of a soul which "has" the sensations, in virtue of its "consideration" of, or "direct contact" with, the corporeal images in the brain.[86] The *identification* of the brain activity with the sensory experiences would account for the same phenomena, and with fewer assumptions.[87] Whatever one thinks of the merits of the argument, it is evident from them that Hobbes is very well aware of Descartes's position, for the argument conspicuously tries to

[86] He makes good on this assertion in *De Corpore*:

> Moreover, whilst those organs which are common to all the senses, such as are those parts of every organ which proceed in men from the root of the nerves to the heart, are vehemently stirred by a strong action from some object, they are, by reason of the contumacy which the motion, they have already, gives them against the reception of all other motion, made less fit to receive any other impression from whatsoever other objects… And hence it is, that an earnest studying of one object, takes away the sense of all other objects for the present (*De Corpore* xxv.6).

[87] Cf. *De Corpore*, xxx.14 ("Conclusion"), where Hobbes supports his system by appeal to the simplicity of his hypotheses.

capitalize on the points of agreement between his position and Descartes's. It tries to exploit the glaring weakness of the Cartesian account: the bold, mechanistic explanations of the world, of meteorological phenomena, of sense, and animal behavior come to a halt at what appears to be an unmotivated stopping point. Of course, Descartes *does* give metaphysical reasons for making a real distinction between the mental substances and properties and extended substance and its extension, but that is beside the point, for the debate is conducted from within the mechanistic scientific framework.

One may object that, leaving aside the intuition that mental things and physical things are radically different classes of things, this Hobbesian reductionist program still does not explain *all* the facts of consciousness and its relation to the body. Why, one might ask, should this particular motion in my brain and heart be an experience with *this particular character*? Simply identifying the experienced phantasm with a bodily-motion does not in any way explain that fact. But this objection is not compelling, for it holds just as well for the materialist reductive story as it does for the Cartesian dualist's story. After all, according to Descartes's account, the rational soul imagines and has sense perceptions by "considering" or being "directly affected" by the corporeal image, inscribed upon the pineal gland (e.g. AT XI: 177; CSM I: 106). But why should the inscription of this pattern of motion—this corporeal image—on the pineal gland *cause* in the immaterial soul, when it "considers" the pattern, an experience with this particular character? Why should this sort of experience inhere in the rational soul under just these sorts of physical conditions? The situation for the Cartesian dualist is worse, actually, for their story only compounds the mysteries and the number of brutally inexplicable facts.

This is, as we have seen, the very point that seems to drive Hobbes's arguments in the *Tractatus Opticus.* And that is why, when he comes to pen the Third Set of Replies Hobbes focuses on the crux of the issue: that all conceptions are derived from sense perceptions, representing individual, material bodies. Descartes's arguments for positing a separate, rational soul are: first, that the soul is what senses, perceives and is generally consciously aware; second, that without the rational soul the human capacity for reason and language is inexplicable; third, that there are non-imagistic ideas, the content of which can only be attributed to a rational soul; fourth, the *Mediations* arguments to the effect that the mind is better known and of a different nature from extended substance. The first three sorts of arguments are scientific and empirical in the broad sense. Each claims to show that there is a rational soul, separate from the body, by arguing that it is necessary to invoke its existence to do explanatory work. But Hobbes has argued that this posit does not do this explanatory work when it comes to sense perception and perceptual representation. The situation between Hobbes and Descartes is one in which Hobbes—so he thinks anyway—has the dialectical advantage. Hobbes is the one defending the view that he takes to be supported by all the cutting-edge science. The operation of the senses, passions, and vital functions of animals can be explicated mechanically. Hence, there is no reason to posit a rational soul to account for human consciousness, unless one already had some independent reason to think that human consciousness is somehow special.

Chapter 3: Memory, Mental Discourse, and the Passions

1. Introduction

Thus far I have provided an account of Hobbes's views on perception and experience. I argued in chapters 1 and 2 that Hobbes gives a causal-functional account of perceptual representation and a mind-body identity theory of perceptual experience. The ideas and phantasms of sense represent physical bodies and their accidents in virtue of the causal roles played by these phantasms and ideas in the overall psychological economy of a perceiving organism. The sensible qualities—the non-cognitive, phenomenal qualities of perceptual experience—are identical with states of the body. They just are the acts of seeing, hearing, touching, smelling, tasting the objects of perception, by which those physical objects in the environment are distinguished and compared with one another. In chapter 2 section 4 I argued for this identification of the phenomenal qualities of experience with the act of perceiving. This reduction of phenomenal qualities and the "appearances" to the act of perceiving and experiencing (motions in the body), is the real source of Hobbes's confidence that he has overcome the dualism of mind and body. Taken on its own seventeenth-century terms, this is a fairly successful reductive account; indeed, although the reduction of mental states and properties to *mechanical* interactions between bodies is bound to fail, Hobbes is actually on pretty good philosophical grounds. The sort of reductive materialism he proposes has, just as a matter of the metaphysics of mind, a certain plausibility. The criticism that Hobbes simply *ignores* the relationship between conscious mental states and physical states of the body, at the expense of the mental, is really not compelling.

The account of chapters 1 and 2 goes quite long way to answering the criticism that Hobbes has simply assumed the truth of materialism without any argument.[88] Understood within the scientific framework of his time and place, Hobbes is actually on good grounds. Since mechanistic physics, with its commitment to materialist explanations of natural phenomena in terms of collisions between bodies, appeared to be scoring successes against school philosophy (in the work of Galileo, Huygens, Boyle, and Harvey for example), it was reasonable for him to believe that such explanations could extend to mental phenomena, if mental phenomena have natural explanations at all. Unless one were satisfied with Scholastic explanations of the mind, the only other position on the scene was Cartesianism. But as we saw Descartes's scientific arguments in favor of the existence of an immaterial soul are inconclusive and unimpressive. The point is that, unless Descartes's metaphysical arguments for dualism are successful (and that is far from clear), it is not crazy nor at all unreasonable for Hobbes to believe confidently in materialism. Hobbes is looking for a naturalistic, reductive account of the mind and believes he is on good scientific grounds here, especially because he thinks he has accomplished the reduction. He should be optimistic.

In this current chapter and the next, I extend these analyses into Hobbes's account of imagination, memory, the passions, deliberation and reason, and signs. One of the central themes of this dissertation is that Hobbes's philosophy of mind is characterized by

[88] Richard Peters *Hobbes*, 83-94. More recently Stewart Duncan has made similar arguments—see "Hobbes, Signification, and Insignificant Names," *Hobbes Studies* 24 (2011): 158-178. See also Stewart Duncan "Materialism," in *The Bloomsbury Companion to Hobbes*, edited by S.A. Lloyd, (London: Bloomsbury Academic, 2013), 55-57; also Duncan, "Hobbes's Materialism in the Early 1640s," *British Journal for the History of Philosophy* 13 (2005): 437-48. Cf. Tom Sorell, "Hobbes's Objections and Hobbes's System" in *Descartes and His Contemporaries: Meditations, Objections, and Replies*, ed. Roger Ariew and Marjorie Grene, (Chicago and London: Chicago University Press, 1995), 83-97 and Tom Sorell "Hobbes Without a Doubt" *History of Philosophy Quarterly* 10 (1993): 121-135.

the attempt to explain all cognitive functions in terms of the operations of the imagination—the only cognitive faculty Hobbes recognizes. From the discussion in chapters 1 and 2, it should be clear that this reduction of the cognitive faculties to the faculty of imagination is of a piece with his overall reductive, materialist scientific project. Hobbes conceives of himself as a natural scientist, seeking naturalistic explanations of human society and psychology consistent with the best science of his day. Since he has, as he sees it, a naturalistic explanation of sense experience and perception, Hobbes can complete his project if he can show that faculty of imagination has sufficient power to yield all of the complex phenomena of human mental life.

Here I note once more that Descartes claimed that "the power through which we know things in the strict sense is purely spiritual," a nonphysical faculty of the intellect, understanding, or reason. In an interesting passage in the *Rules for the Direction of the Mind*, Descartes claims that by relating itself in various different ways to the corporeal imagination and the images inscribed there, the immaterial rational soul is capable of performing distinct mental acts (*Rules*, AT X: 415-16; CSM I: 42).[89] And so, Descartes argues that even while performing diverse mental functions, this immaterial faculty:

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[89] It is unlikely that Hobbes ever read the *Rules for the Direction of the Mind*. Though Descartes composed the *Rules* sometime in 1628, the work remained unpublished until posthumously translated into Dutch in 1684—a language Hobbes seems not to have known and some five years after his death. Hobbes met Mersenne in Paris during his tour of the continent in 1634, but there is no tangible evidence that they discussed Descartes's philosophy, let alone Cartesian metaphysics of the mind. The timeline for Descartes's early interactions with Mersenne is murky, but according to Genviève Rodis-Lewis (*pace* Adrian Baillet) he studied optics in Paris with Mersenne and Mydorge sometime either in 1623 or 1625, but in any event he was not an active member of Mersenne's circle until after 1625 ("Descartes: development of his philosophy" in *The Cambridge Companion to Descartes*, ed. John Cottingham, (Cambridge: Cambridge University Press, 1992), 29-34). So it is unclear whether Hobbes could have had indirect knowledge of Descartes's arguments in the *Rules* via Mersenne.

We know that Hobbes read the *Discourse on Method*, since Kenelm Digby promises, in a letter dated October 1637 (Letter 27, *Correspondence*, vol.1), to send Hobbes a copy of the *Discourse* and since the *Tractatus Opticus* quotes directly from it. Although the *Discourse* was not published until 1637, the ideas expressed in this passage can be found in the *Discourse* (e.g. AT XI: 192 and AT XI: 142; CSM I:

> It is one and the same power: when applying itself along with imagination to the 'common' sense [i.e. the brain], it is said to see, touch, etc.; when addressing itself to the imagination alone, in so far as the latter is invested with various figures, it is said to remember; when applying itself to the imagination in order to form new figures, it is said to imagine or conceive; and lastly, when it acts on its own it is said to understand … According to its different functions, then, the same power is called either pure intellect, or imagination, or memory, or sense-perception. But when it forms new ideas in the corporeal imagination, or concentrates on those already formed, the proper term for it is 'native intelligence' (*Rules*, AT X: 416; CSM I: 42).

Descartes is arguing that the faculty of the intellect, by relating itself in different ways to the images of the corporeal imagination, performs very different mental acts. When the intellect considers the images in the imagination, then the intellect "remembers"; when it "applies itself"—directly, I suppose—to the images inscribed in the brain on the pineal gland then, as we saw, the soul is said to "perceive" and to "sense." In other words, distinct acts of the mind boil down to distinct ways in which the rational soul handles and manipulates the images inscribed in the physical structure of the brain that it receives though the mechanical operation of external objects on the senses.

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102). Descartes seems not to have changed his mind substantially; it is therefore reasonable to believe that these opinions were still alive and in the air when Hobbes lived in exile in Paris (1640-1651), during which time he and Descartes met (and quarreled) and he actively participated in Mersenne and Gassendi's intellectual circles. I propose that here we have another piece of evidence that Hobbes is deliberately building his philosophy of the mind with Descartes's position in his sights: for here, as it was for the phenomenal qualities, Hobbes's position has the dialectical advantage, when the debate is conducted on scientific (i.e. mechanistic) terms.

Notice that, were it not for the intellect, acting as a kind of hub or (nonphysical) rational coordinating director, Descartes's view would entail that there is really no sharp distinction between the corporeal imagination, sensation, and memory. The difference between those *physical* states as mental states is that the *nonphysical* intellect makes different uses of them. But, as in the case of sense perception, it is hard to understand what empirical gains are made by positing the existence of an immaterial soul to do this coordinating. I do not think that Hobbes was blind to this point. Dropping the assumption that there is a nonphysical soul "in" the brain, coordinating and "using" the images in the corporeal imagination to perform various mental tasks, we are left with the possibility that the distinction between the acts of sensation, imagination, and memory is due to the role that images in the corporeal imagination play *in the body.* That is, an idea in the imagination is individuated and distinguished from a memory in virtue of the functional role that *that* corporeal image plays. The similarity between Hobbes's language and Descartes's in the above-quoted passage is so striking it is hard to escape this conclusion: "*Imagination* and *Memory*," Hobbes claims, "are but one thing, which for divers considerations hath divers names" (*Lev*. ii, 28: 23-24). I argue below (in section 3) that Hobbes's claim that memory and imagination are "but one thing" should be understood as a materialist co-opting of the sort of position sketched out by Descartes in the above passage: once you allow that the physical states of the body can partly determine different mental states depending on the "use" made of those physical states—the "divers considerations" determining whether we call it "memory" or "imagination"—it is a very short step indeed to the conclusion that that *just is* the constitutive difference between mental states. The key to seeing this is to realize that there is no need for a coordinating

soul *in* the sentient. It is a move that would be analogous to the one he made in the *Tractatus Opticus*, standing Descartes's argument on its head: it is of no explanatory help to add that the "seeing" happens in the soul, for we already have a physical story that explains how the physical *organism sees*.[90] The mental states of a sentient being just *are* physical states of his body. The (proto-)functionalist account of the distinction between memory and imagination and of the individuation of the passions is a critical part of Hobbes's reduction of the mind to the powers of the imagination and the senses; hence, it is a critical part of his reductionist naturalization of the mind.

Looking ahead somewhat, in chapters 4 and 5 I deal more directly with the "made with words" thesis. Recall that according to the "made with words thesis," Hobbes holds that human thought *itself* is essentially and inextricably bound up with language and names. Proponents argue that Hobbes is committed to the view that without language, there is no general, conceptual or classificatory thought, claiming as Gordon Hull, for example, claims: "Hobbes concludes that thought itself is inseparable from naming" and that "as [his] reduction of intellect to imagination implies, thinking is linguistic from top to bottom; language is not something added later to express thought."[91] The proponents

[90] To remind us: "Cum autem visio formaliter et realiter nihil aliquid sit praeter motum, sequitur etiam videns formaliter et accurate loquendo aliud non esse praeter id quod moventur, nempe corpus aliquod; nihil enim praeter corpus, nempe materiatum, dimensionibus praeditum et loco circumscriptibile, moveri potest. Siquidem ergo animalia videre possunt, id quod in ipsis proprie et adaequate *Videns* dici potest corpus est aut ergo non est anima id quod videt in brutis aut anima movetur, et proinde est corpus," *Tractatus Opticus* iv.14, 206-207. (Since vision is, formally and really, nothing at all except motion, it follows that, formally and speaking accurately, that which sees is nothing else besides what moves, certainly a corporeal something; certainly nothing except body—indeed matter, endowed with dimensions and a circumscribable place—has the power to move. Therefore, since indeed animals can see, "seeing" can be said, proper and adequate to what is in them, to happen in the body or, accordingly, not to happen in the soul — what sees in brutes or rational animals moves, and hence happens in the body). My thanks again to Michael Augustin for his help translating this passage.

[91] Gordon Hull, "Meaning," in *The Bloomsbury Companion to Hobbes*, ed. S.A. Lloyd (London: Bloomsbury Academic, 2013), 101. See also Hull "Hobbes's Radical Nominalism," *Epoché* 11 (2006): 201-23 and *Hobbes and the Making of Modern Political Thought,* (New York: Continuum, 2009), 70-86.

of this interpretation very strongly imply that in the absence of language, there just is *no thought*.[92] These "language forward" interpretations are misguided and this chapter serves as a transition into that discussion, putting us in a good position to see why. The syndrome of views central to these "language forward" theses rests at bottom on a lack of appreciation for Hobbes's views on the natural cognitive powers, overestimating the extent to which language shapes and changes human thought. In particular the view underestimates the epistemic importance Hobbes attaches to memory and the imagination—the cognitive faculties common to both humans and nonhuman animals.

As I have been arguing, Hobbes's view is recognizable as an incohate version of functionalism with respect to the cognitive states and a mind-body identity theory of phenomenal states (what would today be identified as a "biological theory" of phenomenal consciousness).[93] In chapters 1 and 2 I argued for this interpretation with respect to Hobbes's view on perceptual states. In this chapter I consider Hobbes's causal-functional accounts of the distinction between memory and imagination, of the passions, and deliberation. Functionalism is the view that "mental states are constituted by their causal relations to one another and to sensory inputs and behavioral outputs."[94] So, the functionalist characterizes mental states "in terms of their causal roles, particularly, in terms of their causal relations to sensory stimulations, behavioral outputs, and other

[92] Hull "Meaning," 101-02.
[93] See, e.g., Ned Block "Comparing the Major Theories of Consciousness" in *The Cognitive Neurosciences* VI, ed. Michael Gazzaniga, (Cambridge, MA: MIT Press, 2009), 1111-1121; Block does recognize Hobbes as an intellectual ancestor of the "biological" theory ("Comparing the Major Theories," 1111), but Hobbes's view is actually much like Block's view—a functionalism about cognitive states and a brain-identity theory of phenomenal states.
[94] Ned Block, "Functionalism" in *Collected Papers*, vol. 1, *Consciousness, Function, and Representation:* (Cambridge, MA and London: Bradford, 2007), 15

mental states."[95] Hobbes characterizes all of these mental states and processes in terms of their causal relations to sense experience, conceptions, other mental states, and behavior. This chapter is largely expository, setting up the arguments of chapters 4 and 5.

In section 2, I examine Hobbes's views on the memory and imagination. Hobbes claims imagination is "decaying sense" and I explore this claim. I also argue that although Hobbes appears to identify memory and imagination, and has been criticized for this claim, he actually is trying to articulate what we can recognize as a causal-functional *distinction* between the two. Memory and imagination depend on the same cognitive faculty—the faculty of imagination. But an idea in the imagination is distinguished from a memory by their different functional roles.

Hobbes claims that all thinking is a "discourse of the mind." In section 3, which is largely expository, I unpack this claim. This section lays the necessary groundwork for sections 4 and 5, in which I argue that Hobbes characterizes the passions and deliberation functionally—passions and deliberations are constituted by their causal-functional role in an organism. This section prepares the way for the arguments of the chapters 4 and 5. Viewing the discourse of the mind in causal-functional terms will help to shed light on why Hobbes considers the succession of conceptions in the imagination and memory genuinely are *thinking* and not simply a "happening" in the body. In chapter 4 I take up this argument. I propose that Hobbes considers the discourse of the mind a natural inferential power and a causal-functional state of an organism: a discourse of the mind is

[95] Ned Block "What is Functionalism?" in Ned Block, *Collected Papers*, vol. 1, *Consciousness, Function, and Representation:* Cambridge, MA and London: Bradford, 2007), 34.

a state that takes sensations and conceptions as inputs and, through transformations and operations on the conceptions, outputs judgments, opinions, and expectations.

In sections 4 and 5 I look at Hobbes's views on the passions and deliberation. I argue that according to Hobbes the passions are constituted by their causal-functional role. He individuates the passions by reference to those functional accounts. Passions are partly cognitive mental states—they take conceptions and sensations as their "inputs" and have acts of will, behavior determined by a deliberative train of thought, as their causal "outputs." In section 5 I draw further evidence for my interpretation from Hobbes's exchanges with John Bramhall in the *Questions Concerning Liberty Necessity and Chance*. Bramhall argues that Hobbes's compatibilism is false on the grounds that presuppose animals cannot deliberate. I argue that Hobbes sees this assumption as unjustified chauvinism and that he deploys his functional analyses of deliberation to undermine it—animals and humans deliberate, because both organisms are capable of instantiating the same causal-functional state.

2. Imagination and Memory

In the introduction to chapter 1 I mentioned that Hobbes believes that all thinking is a kind of "discourse." In the case of non-linguistic thinking, I claimed, the discourse is a series of operations performed over mental representations. These mental representations are, in accordance with the Copy Principle, derived from sense experience. In chapters 1 and 2 we have seen how ideas and conceptions are formed in sense experience. Conceptions are mental representations of the objects of perception, with "modal

specificity" or an iconic character, derived from the phenomenal qualities of perceptual experience. These phenomenal qualities are acts of sensing—of seeing, smelling, hearing, tasting, touching—objects of the senses, determined by the accidents and "divers" physical effects of those objects on the sensory system. In this section and the next I wish to consider the ways in which the mind stores and manipulates those conceptions in thought. I turn to Hobbes's account of imagination, memory, and what he describes that the "train of thought," and finally I look at the functional characterization he gives of deliberation.

Let us turn first to the imagination and memory. In chapter 1 we saw Hobbes's statement of the Copy Principle: "IMAGINATION therefore is nothing but *decaying sense*" (*Lev*. ii, 26: 26). Now, the "therefore" in this statement of the principle from *Leviathan* indicates that Hobbes thinks he has given a positive argument *for* his Copy Principle. Recall that according to Hobbes's theory of perception, "Sense in all cases, is nothing els but originall fancy, caused … by the pressure, that is, by the motion, of externall things upon our Eyes, Eares, and other organs thereunto ordained" (*Lev*. i, 24: 14-16). The "original fancy" or, following Descartes's evocative terminology, the "corporeal image," though in appearance an image "composed" of light and color and the other phenomenal qualities, is (as I have argued in chapter 2) nothing but a motion in the brain and body of the sentient perceiver. Physical, sensible bodies impress the mind with their "patterns" (*De Corpore* xxv.1). Since these patterns are physical motions, they are also subject to physical (mechanistic) laws. Accordingly, Hobbes explains the imagination, the faculty by which ideas of sense experience are copied and stored in the mind, by the principle of inertia:

> When a Body is once in motion, it moveth (unless something els hinder it) eternally; and whatsoever hindereth it, cannot in an instant, but in time, and by degrees, quite extinguish it: And as we see in the water, though the wind cease, the waves give not over rowling for a long time after; so also it happeneth in that motion, which is made in the internall parts of a man, then, when he Sees, Dreams, &c.[96] For after the object is removed, or the eye shut, we still retain an image of the thing seen, though more obscure than when we see it. And this is it, the Latines call *Imagination*, from the image made in seeing; and apply the same, though improperly, to all the other senses (*Lev*. ii, 26: 16-24).

Similar statements can be found at *Human Nature* (iii.1) and *De Corpore* (xxv.7). I mentioned in my discussion of Hobbes's Copy Principle that it is formulated in a very strong way: ideas and conceptions in the imagination are copies of sensory images for they *just are* the same physical motions in the brain, retained from the act of sense, reverberating around in the "internal parts of a man" after the object of sense is no longer being sensed. With this little argument we are now in a better position to understand this odd-sounding (initially outright false-sounding) doctrine. Perceiving an object is a matter of standing in a particular kind of causal state with respect to the perceived object: having phantasms of sense, caused by the action of an object, that determine the perceiver to discriminate and distinguish that object. The images of perceptual experience—the phenomenal qualities of objects, such as their color, smell, and apparent magnitude—just

[96] The comma after 'then' in this sentence is omitted in Curley's edition of *Leviathan*, which reads: "…so also it happeneth in that motion which is made in the internal parts of a man, then when he sees, dreams, &c." Possibly this is a typographical error, but it is certainly an error, for it distorts Hobbes's meaning in this passage. He means to say that *because* seeing and dreaming are motions in the internal parts of person, *so too*—like the rolling waves on a lake—the motions which *just are* seeing and dreaming "give not over" their motion unless acted upon by an external force.

are identical with the *perceiving* of the object (hence, the phantasms of sense are our "notice" and "knowledge" of objects by sense experience). These are nothing but motions in the "internal parts" of the perceiver, which do not cease moving unless acted upon by a contrary motion. Therefore the very phantasm and image, the physical event *in the brain and body of the sentient* that represents the object of sense and its accidents, *is* the conception and idea of that object and its accidents. In this way ideas and conceptions are basically guaranteed to represent real objects and their accidents.[97] What makes the view seem implausible is that it sounds like Hobbes is saying that the experience of seeing an object is the same thing as thinking about that object; so it seems as if he is eroding or ignoring the distinction between perception and imagination.[98] But this concern is easily dispelled when one remembers that sense perception was in part defined by reference to the external object of perception. The sense experience—the image—one has when one

[97] In this respect, Hobbes may hold a position analogous to Epicurus's doctrine that "all impressions are true" (see *ad Herod*. 46-53, and *KD* 23; also *De Rerum Nat*. 4.469-521). The Greek word "*alēthēs*," translated as "true" in the Epicurean slogan can mean "real" (see A.A. Long and David Sedley, *The Hellenistic Philosophers*, vol. 1 (Cambridge: Cambridge University Press, 1987) 85-96). But we should exercise caution here. Hobbes's view, though generally inspired by Epicureanism, is not *doctrinaire* Epicureanism (for one thing, Hobbes is not a eudaemonist). We should recall Hobbes's claim that the apparent externality and reality of the sensible qualities is a "great deception of sense" (*HN* ii.10). Epicurus developed his position that "all sensations are true" in response to the skeptical tendencies of the early atomists, like Democritus. Epicurus seems to have interpreted Democritus as denying *any* objective reality to the sensible qualities. This is understandable considering fragments like DK 68B9— "By convention, sweet; by convention, bitter; by convention, hot; by convention, cold; by convention, color; but in reality, atoms and void"—and also Democritus's claim that senses yield "bastard" judgments (DK 68B11). However, Richard McKirahan has argued that when the evidence is taken all together, Democritus probably held that "sensations do have an objective basis in reality (being caused by the atoms of the perceived object) and are not simply arbitrary fictions of our minds" (see *Philosophy before Socrates*, (Indianapolis and Cambridge: Hackett, 2010), 335). If McKirahan is correct, then Hobbes's view on the sensible qualities would seem to reflect Democritus's account: the sensible qualities (being "mere fancy") are not features of the real, extra-mental world, but nonetheless have objective grounding in reality and epistemic worth.

For a discussion of the meaning of "*alēthēs*" in the Epicurean slogan, see C.C.W. Taylor, "All Perceptions Are True" in *Doubt and Dogmatism: Studies in Hellenistic Epistemology*, Malcolm Schofield, Myles Burnyeat, and Johnathan Barnes, eds. (Oxford: Clarendon Press, 1980), 105-125. Cf. Stephen Everson, "Epicurus on the Truth of the Senses," in *Companions to Ancient Thought, Volume 1: Epistemology*, Stephen Everson, ed. (Cambridge: Cambridge University Press, 1990), 161-184.

[98] Tom Sorell, *Hobbes*, 84. Also A.P. Martinich, *Hobbes*, 35-37.

perceives an object is a motion in the brain, caused by that object of sense. But when that precipitating object is no longer present and acting upon the senses, the image that remains, though the same motion in the brain, is not any longer an experience or perception. Two things are essential to Hobbes's characterization of sense perception: first, the object of sense must be present and acting upon the sense organs; second, the organism is the perceiving thing. So the perceiver does not count as "sensing" when she imagines an object of sense, for although the phantasm of sense experience is in one respect identical with the conception, she does not stand in the right causal relationship. There is a motion in her body which, *when* she was in perceptual contact with an external object, *was* a sensory experience; yet *now*, after the fact, and without the external thing, that very motion is *imagination*.[99] Hobbes's discussion in *Anti-White* is helpful in this regard: "The being-acted-upon is itself termed perception. But if the object that is the agent is removed, and the same motion or impression [*phantasma*] remains, it is customarily called a 'mind-picture'. So 'a mind-picture' and a perception are the same thing; and as long as it is concerned with the object, 'a mind-picture' is called sense. If, however, [the object] is taken away, [a mind-picture is called] by a name taken from the [mental][100] images, i.e. a notional mind-picture [*in visione*, *imaginatio*]" (xxx.4, fol.340).

Hobbes's physical explanation for the decay of the phantasms in the imagination need not detain us—they are obscured by the action of other sensible bodies on the senses (as the daylight obscures the distant stars) and by the "continuall change of mans body"

[99] Cf. J.J.C. Smart's claims about sense data: when one "has an image" of a yellowish-orange patch, say in an afterimage, one has an experience of the same sort one would have if one *saw* such a patch (see "Sensations and Brain Processes," 65).
[100] The translator's interpolation here may be misleading: Hobbes is saying that when the object is not present, we call a mind picture an "image" in a "notional" way, because it is not *really* an image at all (since you cannot really *see* it).

(*Lev*. ii, 28: 13)—but what is important is the nature of this decay in conception. Hobbes, fond of his parsimonious reductions, notoriously appears to identify the imagination and the memory. Here are his characterizations of memory, in chronological order, beginning from *Anti-White*:

> But a 'mind-picture' is a motion, and every motion consists in a succession; so the mind-picture must also consist in a succession and must always contain something that precedes the present time. For this reason, when we are *not* considering the past, we call the motion a mind-picture, but every time we *do* wish to think about the past, we call the same motion 'the memory'. … Hence [in my scheme] one and the same motion of the mind has now received four [different] names for four different points of view [*viz*. 'idea,' 'sense experience,' 'memory,' and 'time.'] (xxx.5, fol. 340; last interpolation is mine).

In *Human Nature*:

> For the *manner* by which we take notice of a conception *past*, we are to remember, that in the *definition* of *imagination*, it is said to be a conception by *little* and *little decaying*, or growing more *obscure*. An *obscure* conception is that which representeth the *whole object* together, but *none* of the *smaller parts* by themselves; and as *more* or *fewer* parts be represented, so is the conception or representation said to be *more* or *less clear*. Seeing then the *conception*, which when it was *first* produced by sense, was *clear*, and represented the *parts* of the object *distinctly*; and when it cometh *again* is *obscure*, we find *missing* somewhat that we expected; by which we judge it *past* and *decayed* (iii.7).

In *Leviathan*:

> For the continuall change of mans body, destroyes in time the parts which in sense were moved: So that distance of time, and of place, hath one and the same effect in us. For as at a great distance of place, that which wee look at appears dimme, and without distinction of the smaller parts; and as Voyces grow weak, and inarticulate: so also after great distance of time, our imagination of the Past is weak; and wee lose (for example) of Cities wee have seen, many particular Streets; and of Actions, many particular Circumstances. This *decaying sense*, when wee would express the thing it self, (I mean *fancy* it selfe,) wee call *Imagination*, as I said before: But when we would express the *decay*, and signifie that the Sense is fading, old, and past, it is called *Memory*. So that *Imagination* and *Memory*, are but one thing, which for divers considerations hath divers names (ii, 28: 12-24).

And finally, in *De Corpore*:

> For φανταζεσθαι [*phantazesthai*, "appearing to" or "appearance"] and *meminisse*, *fancy* and *memory*, differ only in this, that memory supposeth the time past, which fancy doth not. In memory, the phantasms we consider are as if they were worn out with time; but in our fancy we consider them as they are; which distinction is not of the things themselves, but of the considerations of the sentient. For there is in memory something like that which happens in looking upon things at a great distance; in which as the small parts of the object are not discerned, by reason of their remoteness; so in memory, many accidents and places and parts of things,

> which were formerly perceived by sense, are by length of time decayed and lost (xxv.8).

This apparent identification of memory and the imagination is, on the face of it, pretty implausible. After all, unicorns can be imagined but not remembered and obscurely imagining a scenic vista while, say, reading a poem, is not the same as remembering that very vista.[101] But the sting is removed from these worries by two important considerations.

First, Hobbes eventually deploys his account of memory in his discussion of "trains of thought" and associative learning. The above-quoted passages identifying the imagination and memory are setting up his definitions of experience, prudence, understanding, reason, and, eventually, signs. The claim that memory is imagination in *De Corpore* xxv.8 is in fact embedded within a broader explanation of the associative principles governing the succession of the phantasms in thought. Experience simply is "[m]uch memory, or memory of many things" (*Lev*. ii, 28: 25) or a memory of the succession of "what antecedents have been followed by what consequents" (*HN* iv.6; see also, *Lev.* iii, 42: 21-32, 44: 1-18). And so, when each of the above statements of the identity of memory and imagination are taken in context, it is reasonable to assume that Hobbes intends *veridical* images and ideas; hence, when he claims an idea in the imagination just is a memory, he means that a veridical idea in the imagination is a memory. That just follows from the Copy Principle. An image is a perceptual experience of an object of perception, a "pattern" caused by the impressing of that object upon the

[101] Martinich, *Hobbes*, 36; see also Tom Sorell, *Hobbes*, 84-85 and Richard Peters *Hobbes,* 112-113.

senses, and retained in the "internal parts of a man." Since the image of sense and the image in imagination are identical and the latter is the real and lingering effect of the causal action of the object of sense on the perceiving subject, it is not entirely inappropriate for Hobbes to call an imagination of an object a memory of that object.

But what about our imaginations of unicorns? Recall that in my discussion of the Copy Principle in chapter 1 I pointed out Hobbes's distinction between simple and compounded ideas. This distinction in *Leviathan* comes directly on the heels of Hobbes's claim that memory and imagination are decaying sense (28: 1-24) and his definition of experience as "memory of many things":

> Againe, Imagination being only of those things which have been formerly perceived by Sense, either all at once, or by parts at severall times; The former, (which is the imagining the whole object, as it was presented to the sense) is *simple Imagination*; as when one imagineth a man, or horse, which he hath seen before. The other is *Compounded*; as when from the sight of a man at one time, and of a horse at another, we conceive in our mind a Centaure (*Lev*. ii, 28: 25-31; see also *HN* iii.4 and *De Corpore* xxv.9).

Non-veridical ideas, like unicorns and centaurs, imaginary vistas and romantic fantasies, are fictions of the mind. Again, in his discussion of memory, the context makes it reasonable to assume that he is setting aside fictions of the mind. However, Hobbes does have a story he can tell that explains why a faded unicorn-idea is not a memory of a unicorn. What prevents the idea of a unicorn from being a memory of a unicorn is that it is *not a simple idea*, imagined "as it was presented to sense." The *parts out of which* the unicorn-idea is "compounded"—the idea of a horse at one time and the idea of a narwhal

at another—mix together in the brain to yield the idea of a unicorn. Those parts, however, are memories, for they are in fact the decaying impressions of that "which were formerly perceived by sense." Since all the phantasms of sense experiences are caused by the action of real extra mental bodies, "[n]ature it selfe cannot erre" (*Lev*. iv, 56: 30). And so the ideas and conceptions of the imagination, as they are decaying sense, must also be memories of the impressions of those bodies. Non-veridical ideas must have a source *internal* to the mind (the process of compounding) and errors arise as the result of the perceiving, an organism making a mistake in judgment and expectation, or becoming confused by the force and salience of fictions in dreams (*Lev*. ii, 30: 12-32 and iv, 54: 33-35; cf. *De Corpore* v.1).[102] I shall return to this point in chapter 5 on signs and sign-inferences (when this sort of error will become most relevant), but here it is only necessary to point out that Hobbes does in fact have the resources to explain the difference between a memory and a non-veridical ideas, like fictions, despite apparently identifying the faculties of memory and imagination. He is simply ignoring fictions of the mind in his discussion of memory, having already defined and explained them away.

[102] Again this is account is similar to Epicurus's. Holding that "all impressions are true," Epicurus undertook to explain how sensory illusions, fictions of the mind and dream-images can arise nonetheless (see e.g., *ad Herod.* 46-53 and Lucretius *De Rerum Nat.* 4.722-822, and 4.353-63, 379-86; also *M* 8.63). Dreams and fictions of the mind are explained in a manner reminiscent of Hobbes's. The sensations and impressions of fictions and dreams are true, like any other sensation or impression. They are the real effect of real physical phenomena, impressing themselves on the sense organs and the soul (*psychē*). An impression of a fictional monster, for example, arises from images—atomic films—that are sloughed off of real, solid bodies get "mixed" together, owing to their fineness (*De Rerum Nat*. 4.722-26). Error and falsehood arise from the mistaken judgments perceivers *attach* to these impressions—such as when Orestes believes the images of Furies are flesh-and-blood beings (*M* 8.63). The main difference is that Hobbes rejects the Epicurean theory of the mechanics of perception (see chapter 2) and so he rejects the Epicurean account the images sloughed from objects are "blended" and "mixed" in the space intervening between the objects and the perceiver. Hobbes holds, rather, that the images are "compounded" in the perceiver's mind. My thanks to Voula Tsouna and Michael Augustin for their very helpful discussions of this matter.

The second consideration that should dissolve these *prima facie* worries concerning his apparent identification of memory and imagination is that what Hobbes is actually attempting to articulate a *functional distinction* between the two faculties.[103] He claims that imagination is memory, but that they are distinguished from one another "for diverse considerations." It is critical to understanding his meaning here that we keep straight what Hobbes is claiming is identical with what and what is distinct from what. A given idea is a particular physical motion, happening in the brain, standing in a special causal relationship with external physical objects (the parts of which "are destroyed in time" by the continual changes in the body). That very motion in the perceiver's body that was a sense perception when the object of sense was present, is now an imaginative representation and now a memory of that object. We call the phantasms and ideas retained in the brain 'imagination' and 'memory,' giving those phantasms and ideas "divers names," for the "divers considerations" into which they can enter. But this is not, as Martinich suggests, a simple "linguistic difference" between the words 'imagination' and 'memory.'[104] Hobbes's point is that one and the same physical motion in the brain is a representation of some body external to the mind, but *instantiates a different mental state*, depending on its cognitive role. Those are the "diverse considerations" to which he

[103] Philip Pettit comes very close to seeing this but does not develop the position. He comments that "one and the same internal motion deserves to be described as a sensation in one context, and an imagination in another, and that whether it is construed as a mere imagination or a memory depends on the functions we take it to be serving…internal motions may have still other names, depending on background assumptions" *Made with Words*, 14. However, Pettit seems to emphasize linguistic decisions over causal-functional characterizations—the functions that distinguish mental states are whatever functions "we take" the motion to be serving and our giving internal motions names "depending on background assumptions"—and so it is unclear to me whether Pettit intends to suggest a "linguistic" account along the lines of Martinich, *Hobbes*, 35-37.

[104] *Hobbes*, 36. Martinich argues that Hobbes is distinguishing between focal and nonfocal meanings in "imagination" and "memory"—"In the word 'imagination' the focus is on the fact that it is caused by sensation… in the word 'memory,' the focus is on the decay" (Martinich, *Hobbes*, 36).

refers. In memory "the phantasms we consider are as if they were worn out with time" yet "in our fancy we consider them as they are" and this distinction derives from "the considerations of the sentient." When we, the organic system *doing the considering*, consider them "as they are"—*qua* representations of extra-mental objects—the phantasms retained in the brain are imagination. When we consider them *qua* representations of things "as if they were worn out with time," those *very same* phantasms retained in the brain are memories. Memory and imagination are individuated functionally.

Consider the following illustration. I recall my friend's face. The idea I have of her face is impressed into my brain in sense perception and is, by the Copy Principle, retained there in virtue of the brain's physical constitution. When I am not seeing her, I can recall the image of her face. Considered "as it is"—a fancy and idea of my friend, as such—the image of her face can enter into various kinds of cognitive acts. I can wonder how she is getting along these days or form the intention to give her a call. I can use her image to think about her *qua* philosopher, *qua* biped, *qua* dog enthusiast, or *qua* inexplicably fond of Beck, and so on. For these "considerations" the image of her face, which I have now before my mind, is imagination. This image is, however, obscured by the remoteness of time (and the fact that I am awake and my laptop's screen is interfering with my conscious apprehension of the image as I look at the screen and type these words; if I were dreaming, it would perhaps be a stronger and more vivid image). Considered now not simply "as it is," but "as if it were worn out with time" the image of my friend's face enters into a different cognitive role. Considered now as an image of the past, I can reflect on what was and how things were, prompting ideas of further events

and objects that were connected with one another. These considerations may stimulate recollections of "what followed from what," allowing me to project forward, make predictions, and regulate my behavior, or to manipulate environment so as to, say, avoid or reproduce events like those which I recall. For these sorts of "considerations" the image of my friend's face—the very same mental representation—is a memory. The distinction is *functional* and not simply *verbal*. The imagination and the memory, though they deal with the same ideas and images (physical states of the brain), are distinguished from one another according to the cognitive roles into which those ideas and images enter.

Hobbes also holds that the natural faculty of memory is frail and faulty. It is, in fact, to overcome the limitations of the natural memory that human beings invented names and the primary, fundamental use of names is to serve as notes or "marks" of remembrance: our thoughts "being apt to slip out of our memory, and put us into a new labour, may again be recalled, by such words as they were marked by" (*Lev*. iv, 50: 11-12; see also *HN* v.1-2, *De Corpore* ii.1-2 and ii.4, and *Anti-White* xxx.14, fol. 344v and xxx.15-16, fols. 345-345v). Hobbes is not claiming that nonhuman animals and humans naturally, without the use of linguistic symbols to aid the memory, suffer from dementia. Since the memory just is the faculty of imagination, the problem is less to do with episodic memory and more to do with *cognition*. Hobbes is not claiming that, without language, one cannot recall a beautiful sunset or having had oatmeal for breakfast.[105]

[105] Cf. Martinich, *Hobbes*, 139.

What then is the problem with the natural faculty of memory? In *Human Nature, Leviathan*, and *De Corpore*, Hobbes compares ideas in the memory to the sight of an object seen at a distance. Each of these discussions of memory and its limitations comes in the context of his functional distinction between memory and imagination. Having defined the imagination as "decaying sense," in *Human Nature* he comments that the way we are able to "take notice of a conception *past*" is to notice the "obscurity" and "decay" of the conception (*HN* iii.7). "An *obscure* conception," he continues, "is that which representeth the *whole object* together, but *none* of the *smaller parts* by themselves; and as *more* or *fewer* parts be represented, so is the conception or representation said to be *more* or *less clear*" (*HN* iii.7). It is partly on the basis of this lack of clarity and detail in a memory, when compared with perceptual experiences, that we take it as a memory, and he claims: "Seeing then the *conception*, which when it was *first* produced by sense, was *clear*, and represented the *parts* of the object *distinctly*; and when it cometh *again* is *obscure*, we find *missing* somewhat that we expected; by which we judge it *past* and *decayed*" (*HN* iii.7).[106] This capacity to recognize that the conception in the memory is "obscured" presupposes that the natural, non-linguistic and nonhuman animal mind is capable of *remembering* in a straightforward sense: since one can recognize that a conception is *decaying* only by reference to how it was upon first formation. The conceptions and ideas of objects in sense experience—our knowledge and notice of them by perception—is crisp and richly detailed. But we lose that detail as the conception

[106] As in *Leviathan*, I suspect Hobbes has implicitly restricted his discussion to veridical conceptions—i.e. simple imaginations, copied directly from the senses, without "compounding." Otherwise, his claim that we recognize a memory by the decay is implausible and difficult to understand. He is thinking of a case in which I recall an idea of a thing which (we assume) I know I have seen before. It is a memory—"considered" as such, playing the cognitive role of a memory—by the notice of the decay.

fades in the imagination. That is how distance in time and distance in space have similar effects on the conceptions:

> For example, a man that is present in a foreign *city*, seeth not only *whole* streets, but can also distinguish particular *houses*, and *parts* of houses; but departed thence, he cannot distinguish them so particularly in his mind as he did, some *house* or turning escaping him; … In process of time, the *image* of the city *returneth* but as a *mass* of building *only*, which is *almost* to have *forgotten* it. … To see at a great distance of place, and to remember at a great distance of time, is to have like conceptions of the thing: for there wanteth distinction of the parts in both; the one conception being weak by operation at a distance, the other by decay (*HN* iii.7).

This same case recurs in *Leviathan* (ii, 28: 15-24) and he reiterates the point in *De Corpore* (xxv.8). In each case Hobbes's argument is that the failure of memory is a special failure in our cognitive capacities—in our ability to think. Experience, and so memory, is nothing but a "store of phantasms" (*De Corpore* xxv.8). But the phantasms copied into the imagination and memory are *all* our "notice" and "knowledge" of the external objects of sense. They are our conceptions of the bodies around us; they our individual concepts or "empirical modes of presentation" of them. Our capacity to think about the things that constitute the mind-independent world is dependent upon the conceptions. The problem with the memory is not that we cannot (without language) *remember* people, places, actions, events and so on. Hobbes is absolutely not saying that without the use of names, I cannot remember that I met those people, visited those places, performed those actions, and witnessed those events that I have met, visited, performed,

and witnessed. I can remember a beautiful sunset I once witnessed by simply recalling an idea—an particular conception—of it.[107] Hence, memory—and here, as I said above, we are to understand Hobbes as having implicitly restricted the discussion to veridical, genuine memories—does in fact keep us in cognitive contact with reality, just as sense perception had. The trouble is that the conceptions of the objects of sense are losing *detail*. There is an upper limit to how much detail an idea can lose and still represent its object (as Hobbes acknowledges in the above-quoted passage), but this is a matter of degree. Before my memory of Edinburgh becomes just a "mass of building," but after I am no long present in the city and observing it in the crystalline sharpness of sense perception, there is a wide range of clarity. But the point is that the *idea* of Edinburgh, despite being obscure and "decayed" is *nevertheless* still an idea *of that city*. I can recall visiting Adam Smith's grave, but he's interred in an unassuming churchyard in an unassuming corner of the city, and I certainly cannot even begin to remember the path I took to get there (except that it was circuitous). Yet Smith's grave and the streets of Edinburgh impressed themselves into my brain and left conceptions of themselves there. There is the right causal connection between *this* (pointing inward) conception and *that* (pointing outward) city and grave. Decayed ideas still represent their objects. What gets lost in the decay of the conceptions is the detail and that affects their usefulness as representations. The decay Hobbes is describing is what we today would call "informational impoverishment."[108]

[107] Cf. Martinich, *Hobbes*, 139.
[108] My thanks to Aaron Zimmerman for this helpful term.

An analogy with photography or film is helpful here.[109] A photograph is an accurate record of the object photographed, in the sense that, just in virtue of the physics governing camera and film, the photograph preserves information about the object. The light-waves reflecting off of the object photographed enter through the lens and "write" themselves by some chemical magic upon the film. Hobbes's account of the phantasms and ideas of sense is very similar. Light-waves reflect off of objects of vision and effect the optic nerve through the pupil. This causes motion in the brain and that just is the phantasm of the visible object. One difference between a photograph and the idea is that the photograph does not, normally, deteriorate and decay in the way that the idea does (or not so quickly anyway). A photograph of an object retains all of the detail (visible from the camera's perspective) and—barring tampering, weathering, heat damage and so on—will continue to do so decades later. I can dig up old home-movies filmed by camcorder onto VHS tapes and (if I can find a VHS player) I could watch any video and get an accurate record of the events and people captured by the camcorder on the day of the taping.

But consider a blurry, out-of-focus photograph. It still is a photo *of that* very thing, even though the details are difficult to discern, and this is (again) to do with physics and chemistry. The appropriate causal relationship between the object photographed and the photograph obtains, even in the case of an obscure and blurry photo. But a blurry photo preserves less usable information: there is more "noise" and distortion, which makes it difficult to extract a full account of the thing photographed. A

[109] I draw on the discussion of this analogy in connection with the Epicurean doctrine of the "truth of all sensations" in Long and Sedley, *The Hellenistic Philosophers*, vol. 1 (Cambridge: Cambridge University Press, 1987), 85-86

blurry, grainy video of an event is less useful in determining the order and connection between the various stages of the event, all things considered, than a perfectly clear series would be. The blurry video is still, in a very real sense, an accurate record of the event, but in trying to recall and to piece together "what followed from what" for planning, or to satisfy curiosity, or to decide the facts, the blurriness of the video is a handicap. And although the causal relationship between the video image and the events filmed guarantees that the image is a genuine record of the event, the "noise" and distortion of a grainy video can interfere with our ability to accurately interpret the information captured by the camera and film. Fifteen seconds of grainy, out-of-focus video of what appears to be a large bipedal ape ambling through the forests of the Pacific Northwest certainly constitute genuine record of *something*—but whether the something that stood in those woods on that day and wrought an image of itself upon the film was *Sasquatch* is obviously *not* settled by the existence of that video. A cryptozoologist may conclude that that video constitutes proof of Sasquatch's existence, but that is an interpretation of the information presented in the video. The video "cannot err" by the sheer brutal force of physical law: whatever that thing that was captured by the film is, the blurry video constitutes real proof that something ambled through the woods on that day because of the causal relationship between the film and the object filmed. Error only arises on the part of the cryptozoologist (if he's wrong) that that filmed object is Sasquatch. The same point applies, in Hobbes's view, to the ideas in the imagination and the memory. "Nature it selfe cannot err," but the sentient thinker *can* err in misinterpreting the information captured in the memory of the objects of sense. Hobbes, remember, does not hold that ideas are little pictures in the mind, which the mind "looks at" or—in Descartes's terms

"considers directly"—and so ideas cannot, strictly, be "blurry" in the way that a picture can be. But since an idea in the memory is an internal physical state of the brain preserving information from external physical objects, as the brain state "deteriorates," it preserves less and less information. In this respect, it is like the grainy video or the prospect of a city seen at a distance. And, again like the blurry video, it is an accurate informational state, but is less than optimally useful. This is what Hobbes means when he claims that the natural memory is faulty and frail. Just as fifteen seconds of blurry video of a brown, bipedal something can be interpreted—indeed, *over*-interpreted—as a video of Sasquatch, so the "decay" of the images in the memory can affect the mind's ability to discern "what followed from what." The natural mind, without language, must rely on the memory and experience to help it make sense of the world. But the memory is an imperfect recording device, for although it cannot really make mistakes, the information preserved in the ideas of the memory are prone to decay. The decay of the ideas in the memory introduces "noise" and affects the mind's capacity to reliably interpret the information contained in the ideas. Thus, although *nature* does not err, the mind *is* prone to make mistakes in interpreting and assessing the information it retains naturally. To switch up metaphors, the natural mind is in the position of a person trying to pair-up blurry mug shots with the faces of suspects in a line up. The primary effect of the frailty of the natural memory is to undermine the reliability of *signs* and sign-conjectures and I consider these in chapter 5. I turn in the next section to consider the "discourse of the mind."

3. Discourse of the Mind

Hobbes maintains that all non-linguistic cognition is a kind of "discourse" of ideas. The discourse of the mind is a succession of and operations performed on the conceptions in the imagination and memory. This is a position that he appears to have held consistently throughout his philosophical career. In this section I look at Hobbes's causal-function characterization of the discourse of thought and specifically at what he calls the "regulated train of thoughts." I argue below that Hobbes claims that what distinguishes the different kinds of cognitive processes—what distinguishes deliberation from considering or reasoning—are the different functional roles instantiated by the discourse of the mind in these states. Different cognitive processes are individuated by their causal-functional role in an organism. He does not say this in quite that way, of course, because he did not have this kind of vocabulary available to him, but it is clear from the text that he is thinking along these lines. These points will emerge in this section and sections 4 and 5. What constitutes the train of thought as a mental state—and not simply a succession of physical "happenings" in the body—is the systematic causal role the train of thoughts plays in an organism. This is a point to which I return in my criticism of the "made with words" thesis in the next chapter.

It would be useful to have the relevant texts at hand. Beginning with *Anti-White*, the following are his statements of the claim that there is a discourse of ideas in chronological order:

> As in every liquid, so also in the motions of the mind it is reasonable to suppose that a part that is moved shall draw adjacent part. Just as, wherever you draw your finger one portion of [a film] of water freely spread over a flat surface, the other

> parts also follow it; so one 'impression' arises from another, neighbouring one. Now, those 'impressions' are adjacent that in an act of perceiving follow close upon one another, each to the rest. Hence arises that continuous chain of mind-pictures usually called 'the discourse of the mind', in which two 'impressions' always cohere that will at some time or other be joined, each to each, in the sense (xxx.8, fol.341; cf. *Anti-White* xxx.32, fol. 353. *Anti-White* xxx.21, fol. 348).

And in *Human Nature*:

> The *succession* of conceptions in the mind, series or consequence of one after another, may be *casual* and incoherent, as in dreams for the most part; and it may be *orderly*, as when the former thought introduceth the latter; and this is *discourse* of the mind. But because the word discourse is commonly taken for the *coherence* and consequence of words, I will, to avoid equivocation, call it *discursion* (iv.1).
>
> The *cause* of the *coherence* or consequence of one conception to another, is their first *coherence* or consequence at that *time* when they are produced by sense (iv.2).

In *Leviathan*:

> By *Consequence*, or TRAYNE of Thoughts, I understand that succession of one Thought to another, which is called (to distinguish it from Discourse in words) *Mentall Discourse*.
>
> When a man thinketh on anything whatsoever, His next Thought [*Cogitatio*] after, is not altogether so casuall as it seems to be. Not every Thought to every Thought succeeds indifferently. But as we have no Imagination

> [*Imaginationem*], whereof we have not formerly had Sense, in whole, or in parts; so we have no Transition from one Imagination to another, whereof we never had the like before us in our Senses. The reason whereof is this. All Fancies are Motions within us, reliques of those made in the Sense: And those motions that immediately succeeded one another in the sense, continue also together after Sense: In so much as the former comming again to take place, and be praedominant, the later followeth, by coherence of the matter moved, in such manner, as water upon a plain Table is drawn which way any one part of it is guided by the finger. But because in sense, to one and the same thing perceived, sometimes one thing, sometimes another succeedeth, it comes to passe in time, that in the Imagining of any thing, there is no certainty what we shall Imagine next; Onely this is certain, it shall be something that succeeded he same before, at one time or another (iii, 38: 1-21).

And finally, in *De Corpore*:

> Now it is not without cause, nor so casual a thing as many perhaps think it, that phantasms in this their great variety proceed from one another; and that the same phantasms sometimes bring into the mind other phantasms like themselves, and at other times extremely unlike. For in the motion of any continued body, one part follows another by cohesion; and therefore, whilst we turn our eyes and other organs successively to many objects, the motion which was made by every one of them remaining, the phantasms are renewed as often as any one of those motions comes to be predominant above the rest; and they become predominant in the same order in which at any time formerly they were generated by sense. So that

> when by length of time very many phantasms have been generated within us by sense, then almost any thought may arise from any other thought; insomuch that is may seem to be a thing indifferent and casual, which thought shall follow which (xxv.8).

Hobbes divides "mental discourse" into two basic sub-varies. One is "*Vnguided*, *without Designe*, and inconstant; Wherein there is no Passionate Thought, to govern and direct those that follow, to itself, as the end and scope of some desire, or other passion" (*Lev*. iii, 38:22-25; also *Anti-White* xxx.9, fol. 341v, *HN* iv.1, and *De Corpore* xxv.8; cf. *De Corpore* xxv.9). This type of mental discourse appears "impertinent" and "disorderly," but as Hobbes points out it nevertheless displays a kind of internal coherence, derived from the connection and order in which the objects of the ideas first made their appearance in sense experience. His examples at *Leviathan* iii, 40:4-12 (a train of thought from the consideration of the English civil war to the question: "What was the value of a Roman penny?"), *Human Nature* iv.2 (a train of thought from the conception of St. Andrew to civil unrest), and *Anti-White* xxx.9, fol. 341v (from the word 'faba' to Aesop) illustrate well the sort of coherence and connection that ideas in an "impertinent" train of thought exhibit.

"The second," Hobbes tells us, "is more constant; as being *regulated* by some desire, and designe" (*Lev*. iii, 40: 13-14; also *Anti-White* xxx.9, fol.341v and *HN* iv.1). In *Leviathan*, he describes the regulated train of thought this way:

> For the impression made by such things as wee desire, or feare, is strong, and permanent, or, (if it cease for a time) of quick return: so strong it is sometimes, as to hinder and break out sleep. From Desire, ariseth the Thought of some means

> we have seen produce the like of that which we ayme at; and from the thought of that, the thought of means to that mean; and so continually, till we come to some beginning within our own power. And because the End, by greatnesse of impression, comes often to the mind, in case our thoughts begin to wander, they are quickly again reduced into the way (*Lev*. iii, 40: 14-22).

What Hobbes describes in each of these passages is the core process in terms of which he tries to define all other cognitive processes and cognitive mental states. The train of thought features in each of his functional characterizations of these other processes and states—that is how the regulated trains of thought count as *thinking*. I will return to this aspect of Hobbes's view. But I want to briefly point out some interesting features of Hobbes's speculations on the mechanics of the cognitive process. Recall that according to his methodology Hobbes allows his psychological investigations to be guided by introspective experience and folk-psychology.[110] Manifestly, ideas have a kind of order and coherence to them and Hobbes is trying to give us an account that explains this fact in terms of sense perception and the Copy Principle, both of which cognitive faculties are amenable (as he see it) to materialist reduction. Accordingly, the coherence of the ideas in the imagination is explained by their coherence and order in sense experience. Ideas in the imagination "succeed" and "follow" one another in the same order in which they succeeded each other in sense experience. The transition from one idea to another, the train of thoughts, is governed by associative laws that are grounded in physical principles. The passages from *Leviathan* appear to make gestures at an argument to this

[110] See the introduction to *Leviathan*, for example, and his frequent exhortation to "read thyself" (e.g. *De Corpore* vii.1 and *HN* v.14).

effect. Since, according to the Copy Principle, there is "no imagination whereof we have not formerly had sense, in whole or in parts," it follows that there are no transitions between thoughts that were not likewise copied from sense. The reasoning is a bit perfunctory, but as I understand Hobbes, the point is that the Copy Principle preserves not only ideas "considered singly" as individual representations of particular bodies and their accidents, but also preserves their order, as an LP preserves the order of the notes of a melody in the order of grooves and notches.

The psychophysical principle that Hobbes posits to underwrite the associative connections between ideas and the transitions between them seems to be an early, mechanistic and rudimentary form of "Hebb's rule," the neurological principle that if the firing of one of two adjacent neural axons tends to stimulate the firing of the other, then, if this causal relationship between the two axons is persistently and repeatedly instantiated, the stimulation of the one becomes a sufficient causal condition for the firing of the other (the rule is summed up in the slogan: "The neurons that fire together, wire together").[111] The analogy Hobbes draws between the effects of hydrostatic tension and the succession of ideas confirms this reading: just as droplets of water, drawn across a flat, smooth surface tend to "cohere" and collect adjacent droplets, so too ideas impressed into the brain together in sense experience are raised together later in imagination and memory. The more connections established in sense perception, the more varied and

[111] Hobbes's Copy Principle (and his understanding of the role it plays in the association of ideas) also appears to anticipate Hebb's theory of "consolidation": the short-term memory of an experience is preserved in the brain as a neural feedback loop "reverberating" in the brain; with sufficient time, if the neural loop is sustained, it becomes a long-term memory by effecting structural changes in synapses (see *The Organization of Behavior*, (New York: John Wiley and Sons, 1949)); for a discussion of experimental results pertaining to "Hebb's Rule" and Hebb's "consolidation" theory of memory see John P.J. Pinel *Biopsychology*, 4th edition (Boston and London: Allyn and Bacon, 2000), 372-400 and 417-421. Thanks to Andrew Bollhagen for his helpful discussion.

numerous are the ideas associated in the imagination. As Hobbes sees it, the stimulation of a train of thought can arise either from an external stimulus or from an internal, mental source. Perceiving an object that has been perceived before activates the recollection of associated thoughts. But although perception is the origin of all ideas and their coherence, the recollection of one idea in the imagination and memory is enough to excite other, related ideas—those which "cohered" together in sense experience and were, therefore, "wired" together in the brain. All the more so for a "great" or "predominant" conception, such as an idea of an object of desire, to which the organism is likely to give greater attention and repeated consideration.

I will not dwell too much on the "unregulated" kind; the second, "regulated" variety is more pertinent to the discussion at hand (no pun intended). Notice that the regulated trains of thought are regulated by *desires*, not by "an acquired method [i.e. science], embodied in a system of sensible symbols,"[112] such as a language and that, hence, nonhuman animal and pre-linguistic human minds can "discourse" in a regulated way. Since the phantasms in a train of thought are "renewed as often as any one of those motions comes to be predominant" the train of thoughts that leads the mind from an end desired to the means of attaining that end becomes more fixed and regular than the "impertinent" connection of ideas in dreams and idle fantasy. Ideas of the objects of desire impress upon the mind with a greater force and "predominance" than ideas of things to which we are indifferent. Hence the thought of the desired end "comes often" to the mind and "reduces" the mind back into a "discourse" over the means that have been

[112] Michael Losonsky "Passionate Thought: Computation, thought, and action in Hobbes" *Pragmatics and Cognition* 1 (1994): 251. Losonsky argues that Hobbes posits a special class of thought—a "passionate-thought"—that is grounded in desires and regulated by scientific method, depended upon language. Cf. Losonsky *Linguistic Turns in Modern Philosophy*, (Cambridge: Cambridge University Press, 2006), 46.

observed to produce the desired end. Different types of regulated trains of thought are individuated by the relationship between the object sought and the seeking out of the means, but these finer distinctions need not detain us, for the general notion is clear enough.[113] The idea of an object of a desire—and so, I note, an object of a passion—causes the mind the look back through its experience, the memory of "what followed from what," to discern the way to obtain the object. The conception of the desired end induces an orderliness to the train of thought. As Hobbes puts it in *Anti-White*: "Orderly discourse is that governed by some purpose or goal" (xxx.9, fol.341v). And that is the sense in which a regulated train of thought is "regulated" by a desire and "guided" or "governed" by a passionate thought. The sentient being's desire for some end or object acts as a principle, snapping the succession of ideas in the discourse of the mind into a coherent, regulated train. The conception of the desired end directs the sentient's thoughts to the means to obtain its goal. Hobbes argues that regulated trains of thought presuppose judgment and discrimination. As puts it in *De Corpore*:

> For the thought or phantasm of the desired end brings in all the phantasms, that are means conducing to that end, and that in order backwards from the last to the first, and again forwards from the beginning to the end. But this supposes both appetite, *and judgment to discern what means conduce to the end,* which is gotten by experience; and experience is [the] store of phantasms, arising from the sense of many things (*De Corpore* xxv.8; my emphasis).

[113] Hobbes's classification scheme for these sub-types changes across his works and is difficult to state in a concise fashion. He calls these different sub-types "ranging," "reminiscing," "sagacity" (*HN* iv.3-6; cf. *Lev.* iii, 40-42; see also *Anti-White* xxx.9, fol.341v). Interestingly, Hobbes *may* count experience itself as an orderly "discursion" of the mind in *Human Nature* (although this is by no means clear).

Hobbes makes an analogous point a little later in *De Corpore*. Explaining the reason for the lack of apparent order or coherence in dreams, he gives the following account:

> [S]eeing all order and coherence proceeds from frequent looking back to the end, that is, from consultation; it musts needs be, that seeing in sleep we lose all thought of the end, our phantasms succeed one another, not in that order which tends to any end, but as it happeneth, and in such manner, as objects present themselves to our eyes when we look indifferently upon all things before us, and see them, not because we would see them, but because we do not shut our eyes; for then they appear to us without any order at all (*De Corpore* xxv.9).

In *De Corpore* (as he does in *Leviathan*, *Anti-White*, and *Human Nature*), Hobbes pointed out that even the "impertinent" discourse of thought is not "so casual a thing as many perhaps think it" (*De Corpore* xxv.8), following a coherence dictated by their original association in sense perception. In the above-quoted passages, then, the order and coherence of ideas to which Hobbes refers is the order and coherence of ideas determined by a kind of intentionality—as they are directed and ordered by the conception of an object of desire, the conception of the desired object, in effect "selects" or determines a particular succession of conceptions. The phantasms of sense I have as I look about my office cohere in their predictable and usual fashion: the furniture is exactly where I expect it to be. But the phantasms cohere, but "without any order" in the sense that the phantasms I have as observe the room "indifferently" arrive without tending toward any goal of mine. The regulated train of thought has its order *imposed* upon it, deriving from the force and power the conception of the desired object to focus the mind. As an empiricist, Hobbes claims that the regulated train of thought from desired-object to the

means of obtaining that object presupposes a kind of judgement as to which possible means are those that "conduce" to attaining the goal, a judgment that is based upon experience.

But the train of thought is just an associated series of conceptions, retained in the brain. In virtue of what do these regulated trains of thought count as *thinking*? What makes the regulated train of thought more than an associated series of conception is the role these conceptions play. Regulated trains of thought feature in the processes of deliberation and reason. To anticipate the discussion of sections 4 and 5 somewhat, a regulated train of thought from a conception of an object of desire, to the thought of the means, constitutes deliberation when it play the right sort of systematic, functional role in an organism's mental economy. Deliberation is a cognitive process, the function of which is to determine the will—it is a rational process, involving the conceptions of objects and their connections, recorded in the memory that makes practical judgments and executes them in voluntary action. A regulated train of thought is a process of deliberation, when it causes the voluntary behavior of an organism. Although an organism's desires and passions set the goal, what makes the process rational is that it is end-directed: the thought-process is *aimed* at securing the desired end and at getting the correct means to secure that end. Experience provides the data upon which the mind draws when it considers and judges the best means for securing the end desired. Deliberation is probably the most well-known process in which the regulated train of thought features, and I shall include a discussion of it following my analysis of Hobbes's theory of the passions.

4. The Passions

Memory and imagination are not the only mental faculties and states characterized in causal-functional terms. Hobbes individuates the passions functionally and also draws what we would call a "mode/content" distinction. The passions are partly cognitive states, according to Hobbes, in that they involve the cognitive contents of sense experience and ideas, copied in the imagination and memory. This is yet another respect in which Hobbes's view overlaps with the Epicureans (and the Stoics, for that matter). According to the Epicurean theory of the emotions there is a very tight relationship between belief and reason, on the one hand, and desire and emotion, on the other. This interplay of belief and emotion is critical to the Epicurean (and Stoic) theory of ethics: the passions have to be reason-responsive, and so cognitive states must be able to causally interact with them, for the Epicurean promises to be able to cure the irrational, baseless fear of death and divine retribution, the desire for vain and unnatural pleasures, and other disturbing emotions.[114] Hobbes concurs on both of these points, holding that the passions are tightly connected with cognitive states and that the passions can be prejudicial to one's own interests, when left unchecked by experience and reason. He rejects the eudaimonism of the Hellenistic philosophers, of course, but he does retain the notion that the passions are, in some respects, disruptive states. A passion for an apparent good can militate behavior that acts against what is for the agent an all-things-considered good: the desire for a seventh drink can overwhelm the judgment, made in a cooler state of mind, that long-

[114] See David Konstan, *A Life Worth of the Gods: The Materialist Psychology of Epicurus*, (Las Vegas, NV and Zurich: Parmenides Publishing, 2008). On the Epicurean psychological therapy see Voula Tsouna, "Epicurean therapeutic strategies" in *The Cambridge Companion to Epicureanism*, ed. James Warren (Cambridge: Cambridge University Press, 2009), 249-265; see also Voula Tsouna *The Ethics of Philodemus*, (Oxford: Oxford University Press, 2007). The Epicurean practice of frank speech as a therapeutic strategy is interesting in light of Hobbes's own occasionally sharp rhetoric.

term "felicity" is best served by not indulging (*Lev*. 94: 24-34 and 96: 1-9). This aspect of his view comes out clearly in *De Homine* where he describes the passions as "*perturbations* of the mind [*perturbationes* animi]" that "obstruct right reasoning in this, that they militate against the real good in favor of the apparent and most immediate good, which turns out frequently evil when everything associated with it hath been considered" (xii. 1; see also *De Hom.* xi.5 and *Lev.* vi, 94: 24-34). Furthermore, the passions, particularly the groundless fear of demons and witches and their ilk, can be socially corrosive, causing people to look to "Ghostly men," rather than the duly contracted civil authorities for respite from their disturbance and for security in their times of need (*Lev*. ii, 34: 19). Epicurus believed that knowledge of the natural causes of meteorological phenomena and dreams would alleviate the mental disturbances brought about by the baseless fear of the godsand Hobbes held a similar view. [115] According to Hobbes ignorance is responsible for the disruptive fear of ghosts and demons: "From this ignorance of how to distinguish Dreams, and other strong Fancies, from Vision and Sense, did arise the greatest part of the Religion of the Gentiles in time past … and now adayes the opinion that rude people have of Fayries, Ghosts, and Goblins; and of the power of Witches" (*Lev*. ii, 34: 8-12; cf. *Lev*. xiv, 1012: 18-30). Hobbes agrees with Epicurus that the elimination of this ignorance of the natural causes of dreams and visions would go a long way to curing the problems that beset humankind, for:

> If this superstitious fear of Spirits were taken away, and with it, Prognostiques from Dreams, false Prophecies, and many other things depending thereon, by

[115] See for example *ad Herod*. 76-78 and 80-82.

> which, crafty ambitious persons abuse the simple people, men would be much more fitted than they are for civill Obedience (*Lev*. ii, 34: 26-30).

To make people "more fitted than they are" for obedience, one has to eliminate that fear that keeps the priestly classes in power and "militates" the "simple people" against their own all-things-considered good, peace. I suspect that this is part of the function of the hypothesis of the state of nature and of Hobbes's memorable description of it: someone that can truly imagine how miserable a condition such "continuall feare, and danger of violent death" would be, would find it easy keep the mind focused on the long-term value of peace and the necessary means to secure it, deflating pretentions to agitate against the commonwealth. But this kind of cure Hobbes proposes presupposes that cognitive states causally interact with the passions: beliefs must have the power to raise and to diminish a passion.

I will not have much to say about the political and ethical implications of Hobbes's theory of the passions. I focus here instead on the specifically psychological account and I turn now to consider the way in which cognitive states play a role in the passions.

According his theory of the passions, a passion always has an *object* and this object is the intentional content of an idea or image; passions are *directed* at their objects. The passions and the cognitive content of the passions play an essential role in voluntary action. Hobbes gives what amounts to a standard belief-desire analysis of voluntary action, which makes the imagination the precipitating psychological cause of an action: "And because *going*, *speaking*, and the like Voluntary motions depend always upon a precedent thought of *whither*, *which way*, and *what*; it is evident, that the Imagination

[*Phantasiam*; "fancy"] is the first internall beginning of all Voluntary Motion" (*Lev*. iv, 78: 13-16). What is more innovative and interesting is the naturalism of the account, which takes this folk-psychological story as a starting point. The passions all begin from the *conceptions* and *ideas* of the objects of sense, originating (ultimately) from sense perception. According to his psychophysical explanation of voluntary action, the phantasms and ideas caused by the external objects of sense, being "nothing *really*, but *motion* in some internal substance of the *head*," (*HN* vii.1) do not stop in the head, but are propagated by the arteries and the nerves to the heart, where the motion "of necessity must either *help* or *hinder* the motion which is called *vital*" (*HN* vii.1). When that motion transmitted to the heart it affects the vital motions and the result is an "endeavour"—an infinitesimally small, unnoticeable motion—in the organism either toward or away from the external object of sense. "This Endeavour," Hobbes claims, "when it is toward something which causes it, is called APPETITE, or DESIRE… [and] when the Endeavour is fromward something, it is generally AVERSION" (*Lev*. vi, 78: 24-28; see also *HN* vii.2).

As I remarked in passing in chapter 2, the concept of an "endeavor" has been the cause for some commentators to suggest that Hobbes's philosophy of mind is actually non-reductive, alleging endeavors to be irreducibly mental or that the endeavor is the showpiece concept, "with which Hobbes overcame the body-mind dichotomy."[116] But

[116] J.W.N. Watkins, *Hobbes's System of Ideas*, 87 and 94-95; for a concurring analysis, see Jeffery Barnouw, "Hobbes's Causal Account of Sensation," 115-130. Barnouw does not quite argue that Hobbes's view is non-reductive as such, but that he is not reducing the mind *to mechanical terms*, nor that he intends to do so. See also Michael Losonsky, "Passionate Thought: Computation, Thought, and Action in Hobbes," *Pragmatics and Cognition* 1 (1993): 245-266. I think the trap into which Watkins and Barnouw (to an extent) fall is that of letting Leibniz's use of *conatus* dictate the narrative; if Leibniz uses *conatus* to overcome the mind-body dichotomy, then it is by making the material world to be composed of little, atomic minds—monads. But *Leibniz* is happy to accept the panpsychism of the view. For an argument that

again, I argue that there is nothing peculiarly *mental* about an endeavor, even when Hobbes deploys it here in this context. And after all, since non-sentient, non-living physical things have or are subject to endeavors, this notion that endeavors are somehow the secret, unstated never-explicitly-acknowledged-as-such key to Hobbes's material monism just betrays him to the very panpsychism from which he obviously distances himself. Contrary to what Watkins implies,[117] accounting for voluntary action is the least of the challenges facing a materialist monist, especially when you already have a materialist account of sense and conception. The hard work Hobbes's reductionism has to do is to give an explanation of the physical nature of *phenomenal consciousness* and *rational thinking*, in light of the arguments that the mental and physical are "different natures." But as we have seen, the reduction of phenomenal states to matter in motion is accomplished by his identification of the phenomenal qualities with the acts of sense, not by endeavor. Hobbes does not invoke the notion of endeavor to show how a voluntary action can be a physical event, as opposed to an irreducibly mental act of the rational soul. That much Hobbes thinks is clear from the fact that the desires cause an organism's successful behavior with respect to its environment, that desires depend on the corporeal imagination and sensation, and that animals can act voluntarily (and note that, with the exception of the last, these are points of agreement between Hobbes and Descartes).[118]

Hobbes uses 'endeavour' as a waffle-word in equivocal arguments (a "subtle move"), see Richard Peters and Henri Tajfel "Hobbes and Hull—Metaphysicians of Behaviour," 33. On the influence of Hobbes's physical theory on Leibniz see H. Bernstein, "*Conatus*, Hobbes, and the Young Leibniz," *Studies in History and Philosophy of Science*, 11 (1980): 25-37.

[117] *Hobbes's System of Ideas*, 86.

[118] As Gary Hatfield points out, Descartes argues that the "machine man" he has created in his thought experiment in the *Treatise on Man* is capable of imitating the actions of a real (i.e. ensouled) man and gestures at a mechanistic theory of learning ("Descartes' physiology and psychology," 347). See also Descartes's summary of his results in the *Treatise on Man* (AT XI: 200-202; CSM I: 107-108); cf. *Discourse on Method* V (AT VI: 55-60; CSM I: 139-141).

The point of invoking endeavors in his explanation of voluntary action is to posit an unobserved, infinitesimally small, and immeasurably fast motion—which, according to the definition in *De Corpore*, is just what an endeavor is—to account for the *apparent spontaneity* of thoroughly unspontaneous behavior.[119] That is, the endeavor that is the "interior beginnings of voluntary motion" is a mechanical hypothesis designed to "salve the phenomena." It shows how, given the mechanical assumptions, it is possible that apparently uncaused actions are in fact caused; Hobbes invokes endeavors in his account of voluntary action for reasons basically the same as his reasons for invoking endeavors in physics. Thinking of an endeavor as something like an infinitesimal motion, the endeavor is meant to account for physical forces like resistance (*De Corpore* xv.2) and because endeavors are propagated indefinitely though the medium, they guarantee that there is constant, imperceptible motion in the universe and secure for Hobbes an explanation of apparent cases of instantaneous action at a distance (*De Corpore* xv.7; cf. *De Corpore* xxii.9); thus, for example, the action of the sun on the eye is instantaneous and mechanical, though it is millions of miles away from our eyes.

What makes the matter confusing is that Hobbes seems to identify the appetite *for* an object with the endeavor *towards* the object. But in fact he does not identify an appetite for an object with an endeavor toward that object. If we read the passages

[119] And not as Watkins argues, because endeavors are "non-extensional" physical magnitudes. Watkins argues Hobbes is using "endeavor" to show that desires can be non-extended things, but also material. Since, endeavors are instantaneous velocities over infinitesimally small distances, Watkins concludes that endeavors are "non-extensional physical magnitudes" and so since desires are endeavors, they are also non-extended: "An endeavour is a tendency to move in a certain direction; and so is a desire… A desire is unextended; and so is an endeavour; … [Man] is a conational system which, like other physical systems, has extensional and also non-extensional properties" (*Hobbes's System of Ideas*, 94-95). It is a mistake to think that a desire is "a tendency to move in a certain direction" and it is not *Hobbes's* mistake, as I argue below.

carefully, what we see is that the endeavor is a motion and of necessity in some direction. But this motion-in-a-direction does not *simply* constitute an appetite or aversion. This comes out clearest in the discussion in *Leviathan*. There Hobbes claims that an endeavors are the "small beginnings of Motion, within the body of Man, before they appear in walking, speaking, striking, and other visible actions" (*Lev*. vi, 78: 20-23). In the next paragraph, Hobbes defines appetite and aversion: an endeavor "when it is toward something which causes it, is called APPETITE" and when "fromward," an aversion (*Lev*. vi, 78: 24-28). So, when an endeavor is toward an object that causes it, it is an appetite; when away from that object, it is an aversion. But this is not the whole story. It is important to bear in mind the context of this definition. In first paragraph of *Leviathan* vi, Hobbes limits the scope of "causes of endeavors" in this context to objects of conceptions, acting upon us *through* the conceptions. He is, after all, trying to provide the scientific basis for the commonsense account of voluntary action: the belief-desire model of action. Drawing on an etymology of 'appetite' and 'aversion' (which words "we have from the *Latines*; and they both of them signifie the motions" of approaching and retreating), Hobbes himself indicates that this is how he sees his own account: "For nature itself does often press upon men those truths which afterwards, when they look for somewhat beyond nature, they stumble at" (*Lev*. vi, 78: 31; 80: 1). His point is that the Latin roots of 'appetite' and 'aversion' (and the Greek equivalents ὁρμή [*horme*] and ἀφορμή [*aphorme*] (*Lev*. vi, 78: 30-31)), connote motions toward and away. These connotations, which survive in English, are a sign of a pre-theoretic recognition of what is, according to Hobbes, a correct psychophysical description: appetite and aversion are a kind of real motion. It is the philosophers of "the Schooles" who "stumble at" the truths

of nature, for when they observe appetites and aversions they "find in meere Appetite to go, or move, no actuall motion at all: but because some Motion they must acknowledge, they call it Metaphoricall Motion; which is but an absurd speech: for though Words may be called metaphoricall; Bodies, and Motions cannot" (*Lev*. vi.2). The words 'appetite' and 'aversion' connote motion and the appetites and aversions cause the motions of the body; but because they cannot *observe* any motion happening *within* the agent when she is in an appetitive or aversive state, the confused schoolmen are forced into the absurd view that the motions of the appetites and aversions are "metaphorical" motions. Whatever one makes of this suspiciously rhetorical philological exercise, the point relevant to our purposes is that Hobbes thinks that the Scholastics are making an error arising from a confusion over the fact that they cannot directly *observe* the motions in the body which give rise to overt behavior. Thus, "endeavor" is posited to plug the hole. Why do we not *see* any motion precipitating the action? Hobbes's answer: that motion is an endeavor, a motion "*made in less space and time than can be given*; … that is, *motion made through the length of a point, and in an instant or point of time*" (*De Corpore* xv.2). It is, by definition, immeasurably small and swift motion. The point of invoking the concept of "endeavor" in the definition of appetite and aversion is to posit a real, though unobservable mechanical action that causes the bodily actions. Hobbes's use of "endeavors" in his definitions of appetite and aversion do not illicitly smuggle in goal-directed mentality or represent a retreat from his reductive materialism. They are here, again, to provide a scientifically respectable account for the apparent spontaneity of voluntary action. The motion that causes action is not metaphorical motion; it is real motion. And because, as I discuss below, the appetites and aversions *are* pleasures and

pains, which we feel "tugging" and "goading" us, we can understand the sense in which Hobbes thinks we *do* have a pre-theoretical concept of the endeavor, based on more than the connotations and Latin roots of 'appetite' and 'aversion'—we have a *phenomenal* concept of the real motion and we grasp it *scientifically* by the mechanical concept of "endeavor."

Endeavors are *part* of the definition of appetite and aversion—they are the mechanical "building blocks" so to speak—but there is more to the definitions than this. A mere endeavor does not constitute appetite or aversion and this is true even if the endeavor is directed at or away from its cause. If I kick a soccer ball against the side of the house, it will rebound back towards me, but the ball does not desire me. Cannonballs have endeavors too, but they do not have aversions and appetites. What makes an endeavor in an organism an appetite, a psychological state, and not simply cannonball-esque motion-in-a-direction, is the functional role into which the endeavor fits in the overall behavior of the organism. An appetite is an endeavor caused by the object of a conception, by the fact that the organism *has* the conception, determining the organism to purse that object (and vice versa for aversions). Thus, only endeavors featuring in these special causal chains count as appetites (and aversions). What is objectionable about the use of endeavors in this account is that *endeavor* is an unclear concept in the first place: what *parts*, exactly, are moving toward the object of appetite? Not the limbs, presumably, for the endeavor is what is supposed to explain the motion of the limbs. The answer must be that the microscopic parts of the body endeavor. But, just from the point of view of physics this is unsatisfactory. I stand before the fridge. The conception of beer determines me to open the door and grab a beer. At the microscopic level, the physical story is that

endeavor (endeavors?) toward the beer caused the eventual motions of my limbs, by which I reached for the beer. But why, as I stood before the fridge, did the rush, say, of the animal spirits in the direction of the fridge cause me to move my arm, rather than tip forward and lean against the fridge? There is a story about the pneumatics of the spirits through the arteries and veins to be told here. I only wish to highlight the point that the unsatisfactory nature of Hobbes's account of voluntary action arises not so much from the reduction of voluntary action to material motion (because that is a causal-functional account), but from the physical account of motion itself.[120]

With this concern set aside, I proceed with my exposition of Hobbes's functional characterization of the passions, beginning with his views on pleasure and pain as they relate to the passions. The according to Hobbes's account, voluntary motion begins with the passions, and the passions begin with sense experiences of pleasure and pain. When the motion of the conception, transmitted to the heart, helps the vital motions, it is a pleasure; when it hinders the vital motions, it is a pain. In fact, as with the phenomenal qualities of the objects of sense, Hobbes gives an identity theory of the phenomenal experiences of pleasure and pain: pleasure and pain *just are* those motions helping or hindering the vital processes of an organism. As in the case of the sensible qualities of color and light and so on, the conceptions transmitted to the heart do not cause a motion that then causes pain or pleasure; rather, pleasure and pain are identical with the motion in the heart that helps or hinders the vital motions:

[120] See chapter 2, section 4 for an argument that Hobbes's (proto-)functionalist analyses would count as reductive analyses by his seventeenth-century standards.

> As, in Sense, that which is really within in us, is (as I have sayd before) onely Motion, caused by the action of externall objects, but in apparence; to the Sight, Light and Colour; to the Eare, Sound; to the Nostrill, Odour, &c.: so, when the action of the same object is continued from the Eyes, Eares, and other organs to the Heart; the reall effect there is nothing but Motion, or Endeavour; which consisteth in Appetite, or Aversion, to, or from the object moving. But the appearance, or sense of that motion, is that wee either call DELIGHT, or TROUBLE OF MIND.
>
> This Motion, which is called Appetite, and for the apparence of it *Delight*, and *Pleasure,* seemeth to be, a corroboration of Vitall motions, and a help thereunto; … and the contrary [is appropriately called] *Molesta*, *Offensive*, from hindering, and troubling the motion vitall (*Lev*. vi, 82: 20-32).

Hobbes makes the same claim in *Human Nature*:

> [W]hen [that motion from the sense and conception of an object, to the heart] *helpeth* [the vital motions], it is called *delight*, *contentment*, or *pleasure*, which is nothing really but motion about the heart, as conception is nothing but motions in the head (*HN* vii.1)
>
> This motion, in which consisteth *pleasure* or *pain*, is also a *solicitation* or provocation either to draw *near* to the thing that pleaseth, or to *retire* from the thing that displeaseth; and this solicitation is the *endeavour* or internal beginning of *animal* motion, which when the object *delighteth*, is called *appetite*; when it *displeaseth*, it is called *aversion* (*HN* vii.2).

Similar claims can be found at *De Homine* xi.1 and *De Corpore* xxv.12. The claim in *Leviathan* chapter vi mirrors the claim made at *Leviathan* chapter i: just as the qualities of sense appear "to us in fancy" as lights, sounds, smells, tastes, etc., though they are "in us that are pressed" nothing else but motions, so too the "real effect" in the heart is nothing but motion or endeavor, which "consisteth in appetite or aversion" but is in appearance "delight" or "trouble of mind." The experience of pleasure and pain is treated by Hobbes in the same way as the phenomenal qualities of sense experience. Pleasure, like color, is a motion in the body and just as the act of seeing a colored thing is the experience of color, so too the experience of pleasure just is an appetitive reaction in the body.

The identification of pleasure and pain with motions that specifically help or hinder vital motions is problematic and not particularly plausible, especially in the case of pleasure. Beer and rare red meat are sources of pleasure; yet there is surely no doctor irresponsible enough to prescribe a steady diet of beer and bloody steak to "help the vital motions."[121] I suspect that Hobbes's thought here is caught between, on the one hand, a hazy intuition of something like an evolutionary account, according to which pleasurable and painful experiences have obvious survival value for an organism and, on the other, the observation that pleasures and pains have very salient effects on the heartrate and mood (I could see someone, for example, focusing on the experience of anticipating pleasure: it quickens the heart and generates a kind of mild giddiness and receptivity, which I suppose seems like a healthy, zesty, vigor). Be that as it may, the identification of pleasure with *some* motion in the body that orients an organism toward the seeking and obtaining of objects—a "pro-disposition"—is not at all unreasonable, and this is in the

[121] Martinich, *Hobbes*, 42 makes a similar point.

end all that Hobbes probably needs. The objects of sense cause within an appetite or desire, which is a pleasure or a pain and is an impulse to "drawn near" or to flee "fromward" the object. Pleasure and pain are not, therefore, simply epiphenomenal "raw feels" caused by motions in the body. Just as in the case of sense perception, appetite and aversion are a kind of motion in the body with a peculiar phenomenal "feel" about them, but the "feel" is identical with those bodily motions. Pleasure and pain just are appetite and aversion; the "feel" of pleasure and pain is the "appearance" of that motion, just as the experience of the sensible quality of red is the experience of seeing a red thing. Hence, in one sense pleasure and pain are functionally identified mental states. To be in pain is to be in an aversive dispositional state with respect to an object of sense: it is a kind of internal "tugging," inclining the organism to flee and avoid the object of the aversion. Pain *just is* "a solicitation" to "retire from the thing that dispeaseth." Being in that state has a kind of phenomenal character—the feeling of pain. And again, as I argued in the last chapter, Hobbes's reliance on introspection does not undermine the identity theory. Hobbes could have been more explicit about the distinction, but he does draw it: we have a concept of aversion derived from natural science and another drawn from experience.[122] But they are concepts of one and the same thing. Pain is a state of the body; pain is also painful. The painfulness of pain gives us a unique concept of the body's motions, but it does not follow that painful sensations are merely an epiphenomenal "shadow" of real, material pain. Pain is the *sense* of aversion; just as *color* is the experience of *a colored thing*. Hence Hobbes concludes that "*Pleasure* therefore, (or *Delight*,) is the apparence, or sense of Good; and *Molestation* or

[122] Cf. *De Corpore* iii.4: "because they can consider thought without the consideration of body, they infer there is no need of a thinking-body."

Displeasure, the apparence, or sense of Evill" (*Lev*. vi, 82: 33-34). It's just an "inward" experience, not an "outward" one. This can be seen too in his discussion of the distinction between sensual pleasures and mental pleasures in *Leviathan*: a sensual pleasure is the experience of the sense of the object of a desire; mental pleasures occur in the expectation of obtaining (*Lev*. vi, 84: 1-11).

Before turning to consider in more detail his causal-functional characterizations of the passions, I want to briefly note an interesting feature of Hobbes's early views on the relationship between pleasure and pain and the conceptions. In *Human Nature* (ms. circulated ca. 1640), Hobbes takes a surprisingly strong view on the pleasures and pains caused by ideas and sensations. In that work he goes so far as to claim that *all* conceptions—in sense and in imagination—are pleasures and pains.[123] We have already seen (in chapter 2, section 2) that Hobbes holds that the phenomenal experience of heat ("our heat") is a species of pleasure and uses this as evidence that the phenomenal quality cannot be "in" a hot object (*HN* ii.9). But Hobbes extends this to all sensations and imaginations. He seems to view this as a consequence of his theory of sensation: the motions in the brain that are the phantasms of sense do not stop in the brain, "but proceeding to the *heart*, [they] of necessity must there either *help* or *hinder* the motion which is called *vital*," and since this hindrance or help of the vital motion just is the experience pain and pleasure, all conceptions end up as a species of pain or pleasure (*HN* vii.1). He argues explicitly that since "all conceptions we have immediately by the *sense*, are, *delight*, or *pain*, or *appetite*, or *fear*; so are all the *imaginations* after sense. But as

[123] Hobbes would seem to anticipate what one author has regarded as Berkeley's innovation and major premise in his argument for idealism: that the conceptions just are a species of pleasure and pain, all of them having this affective valence (see Samuel C. Rickless, *Berkeley's Argument for Idealism*, (Oxford: Oxford University Press, 2013)).

they are weaker imaginations, so are they also weaker pleasures, or weaker pains" (*HN* vii.3). And again, dividing conceptions into "*three sorts*"—sense of the present, remembrance of the past, and expectation of the future—Hobbes claims, "every of these conceptions is *pleasure* or *pain present*" (*HN* viii.2).[124] This is a very intriguing claim, but it is implausible, whether Hobbes intends pleasure and pain in the dispositional or phenomenological sense. I find that the claim that (gentle) heat is a kind of pleasure has good phenomenological support. Certain sensory experiences—especially certain tastes—do seem to qualify as pleasures. But *all* sensations and conceptions? It seems to me that I can look out my window at the passing clouds, experience that sensation, and yet experience it neither as a pain nor a pleasure, nor be determined by appetite to "draw near" nor by aversion to move "fromward" the clouds. However, these points seem to have occurred to Hobbes, for in *Leviathan* (1651) he adds a third class of affective response: "Those things which we neither Desire, nor Hate, we are said to *Contemne*: CONTEMPT being nothing else but an immobility, or contumacy of the Heart, in resisting the action of certain things" (*Lev*. vi, 80: 20-24).[125]

In any case, we are now in a position to bring all of the threads of Hobbes's account of the passions together. First notice that Hobbes gives a causal-functional characterization of appetite and aversion. An aversion is not any old motion, hindering the vital motions. A sharp, powerful blow to the sternum can stop the heart (so I've been told), but it would be odd to call this an *aversion*. Aversion is a motion with a special

[124] In *Human Nature* 2.viii he gives a neat story to explain why no one is bothered by their own stinky odors: "the displeasure of this is a conception of the hurt thereby from those odours, as being unwholesome, and is therefore a conception of evil to come and not present."
[125] Although, the case is not absolutely clear cut, for contempt arises, at least in part from "want of experience" of the things contemned (*Lev*. vi.5).

etiology: it is a motion that hinders the vital motions of the body, *caused by a conception* of an object, and *causing* aversive behavior with respect to the *object* of the conception. Thus, a blow to the chest is not an aversion, though it hinders the vital motions. What is necessary is that the motion hindering the vital motions proceeded from the conception of some object. This example shows a weakness in Hobbes's account, but it is illustrative. Surely having one's chest struck with lethal force is painful (if only for a brief moment). But, since this is not obviously an aversion, it is not clear that it satisfies Hobbes's definition of pain even if we invoke "endeavor" and treat the aversion as instantaneous, because (so I am supposing) the blow to the chest, not the conception of a blow to the chest, caused the heart to stop; so, it looks as though a sharp, short blow to the chest does not cause pain. This arises, however, only because Hobbes is identifying the painful experience with the conception-caused aversive response in the body and identifying the *phenomenal property* "being in pain" with these aversive responses. According to Hobbes, being in pain is a physiological and behavioral state—a causal-functional state caused by a conception—and this is why he appears open to counterexamples like the one I just gave. The objection is not fatal to his materialism, so long as Hobbes liberalizes the identity claim about the experience of pain (and pleasure): aversive reactions caused by conceptions may be a *species* of pain, but they cannot be *the whole* of it.

But regardless of what we could say on Hobbes's behalf here, what it clear is that aversion and appetite get a causal-functional treatment and that conceptions play a constitutive role. A passion is an appetite or aversion, an endeavor toward or "fromward" an external object, caused by the idea of that object. Consider, for example, Hobbes's

characterization of the distinction between love and appetite, on the one hand, and hate and aversion on the other:

> That which men Desire, they are also sayd to LOVE: and to HATE those things, for which they have Aversion. So that Desire, and Love, are the same thing; save that by Desire, we alwayes signifie the Absence of the Object; by Love, most commonly the Presence of the same. So also by Aversion, we signifie the Absence; and by Hate, the Presence of the Object (*Lev*. vi, 80: 6-10).

Desire or appetite is the same thing as love, according to Hobbes, but we call a desire 'love' to "signify the presence" of the object of the appetite. As it was in the case of the distinction between memory and imagination, the difference Hobbes is drawing a not *mere* linguistic distinction between desire and love and he is not intending to report on the common use of the English words 'desire' and 'love.'[126] Once again, the folk-psychological concepts of "desire" and "love" derived from introspection and experience are Hobbes's guide but he is not trying to do *mere* conceptual analysis or Oxford style "common language" philosophy. Hobbes considers himself to be a natural philosopher in the seventeenth-century sense—he sees himself as a natural philosopher, developing a genuinely scientific account of human nature. This means giving an account of human psychology in terms of the cutting-edge science of the day, and hence, to provide reductive analyses of desire and love that explains the distinction in terms of matter and motion. What he gives us here is a functional difference between the desire and love: desire and love are complex causal-functional states that are individuated by the role

[126] *Pace* Martinich, *Hobbes*, 39. Cf. Tom Sorell, *Hobbes*, 90-92.

played by the conception of the object of the appetite. Both love and desire are motions in the body inclining an organism to "draw near" the object that caused it—this is what makes desire and love appetites—but love is distinguished from desire because desire is the appetite for an object that is not present in the organism's immediate environment (as I understand Hobbes, he means the "presence" of the object to include the actual enjoyment of it). That's a causal-functional distinction, not a *verbal* one. Hobbes is saying that the difference between love and desire is marked by the difference in the role played by the conception (presumably, though Hobbes does not explicitly say at *Leviathan* vi, 80: 6-10, the conception's role is partly determined by the subject's beliefs concerning the object of the conception). What makes a desire *a desire*—a mental state of *that* type—is that it is an endeavor to draw near to the object of conception, when that object is "absent." Love is causal-functional state, much like desire, but for the difference that the object is not "absent." The "inputs" of the two states are the same conception, but their behavioral and cognitive "outputs" are very different. The desire for beer may cause one to consider various places to obtain beer (the liquor store or the credit union?), the means to obtain beer (strong-arm robbery or legal purchase?), and may cause one to walk down to the liquor store to buy (or steal) some. The love for beer implicates the conception of beer in a different causal network: I pour the beer, sip the beer, and savor the taste and smell.

Hobbes argues that appetite and aversion, and their functional permutations are the basic, "simple" passions. Every other complex passion is some kind of causal-functional variant on these:

> These simple Passions, called *Appetite*, *Desire*, *Love*, *Aversion*, *Hate*, *Joy*, and *Griefe*, have their names for divers considerations diversified. As first, when they one succeed another, they are diversly called from the opinion men have of the likelihood of attaining what they desire. Secondly, from the object loved or hated. Thirdly, from the consideration of many of them together. Fourthly, from the Alternation or succession it selfe (*Lev*. vi, 84:12-16).

Hobbes then proceeds to give a list of the passions, individuated according to some or all of these four criteria (though the definitions mostly invoke the first and second criteria). These causal-functional characterizations explain a feature of his discussion that might otherwise be puzzling. Hobbes gives a psychophysical story in his explication of appetite and aversion, but "the purely physiological account gives out soon after it has begun" leaving the status of his account of the passions as an empirical theory unclear.[127] He does not give separate physiological accounts for each passion, because the distinction among the passions is causal-functional, not physiological. Since every passion is—at its root—an appetite or an aversion, the underlying physiological story does not differ from one passion to the next in any interesting way. A passion is *constituted* by its causal-functional role, as it is realized in the body. All the passions are functional states that take conceptions of desired objects as inputs and output behaviors. Hence, Hobbes saw no need to repeat the physiological account at each definition of a distinct passion. In what follows, I explore these causal-functional definitions. It would be tedious and

[127]Tom Sorell, *Hobbes*, 91. I would also point out that *pace* Sorell, Hobbes's claim that desire, love, aversion and hate are the "simple passion" from which all other passions are derived is not the claim that "[t]hough we have many names for the passions… that diversity in types of passions is largely superficial," *Hobbes*, 89. The diversity is real. Different passions are constituted by their different causal-functional relations.

unnecessary after a point to work through each of these little definitions, but I shall pick a few illustrative cases.[128]

First, let us consider Hobbes's definitions of hope and despair: "*Appetite* with an opinion of attaining, is called HOPE" while "[t]he same, without such opinion, DESPAIRE" (*Lev*. vi, 84: 18-19). Hope is an appetite. Therefore it is an endeavor of a special sort—an inclination to "draw near" an object of conception. I take it that Hobbes is presuming that when we hope for *x* we do not yet possess *x*, so hope would be a kind of *desire*. Hope is distinguished from this simple passion by an extra factor, the first of the "divers considerations" listed in above *Leviathan* vi, 84: 12-16. A hope and a desire can be directed at the very same object, despite being very different mental states. Hope is a desire, but a desire conditioned by the belief in the possibility of attaining the object of the desire. Hope and simple desire have different causal effects on the organism's behavior, for deliberation only takes place in those cases in which she believes it is possible to attain her ends (*Lev*. vi, 92: 1-6; 10-13). And therefore, hope should involve deliberation and have voluntary action as its "output." An agent who is hopeful of a good harvest behaves in a different way from one who merely desires a good harvest. The hopeful believes it is well within her grasp to achieve the object of her desires.[129]

The account of despair is analogous to the account of hope. Despair is individuated from simple desire by the element of opinion: a negative opinion that one

[128] Hobbes's account in *Human Nature* is basically the same. I focus on the presentation in *Leviathan* because it is organized in a more perspicuous and orderly way.

[129] To forestall a quibbling objection: commonly we use 'hope' to indicate a wide-eyed expectancy, rather than a belief in one's own personal ability to succeed. This is the sense we have in mind when we use 'hopeful' in a pejorative way (as in: "Gareth Bale takes yet another hopeful shot on goal from forty yards out"). But it should be clear that Hobbes is using 'hope' in a broad sense that would seem to include both a wide-eyed expectancy and a confidence that one has the personal power to achieve one's goals. Each of these are perfectly normal senses of 'hope.'

shall obtain the object of desire, added to the simple desire, yields the passion of despair. And as before, one would expect the mental state to produce certain behavioral results. The person who despairs of *x* does not bother to deliberate over *x*, for "there is no *Deliberation*… of things known to be impossible, or thought so; because men know, or think such Deliberation vain" (*Lev*. vi, 92: 3-4).

Another good example of Hobbes's causal-functional characterizations of the passions is his distinction between four different kinds of "love of persons":

> *Love* of persons for society, KINDNESS; *Love* of persons for pleasing the sense only, NATURAL LUST; *Love* of the same, acquired from rumination, that is, imagination of pleasure past, LUXURY; *Love* of one singularly, with the desire to be singularly beloved, THE PASSION OF LOVE (*Lev*. vi.30-32).

Each of these four kinds of love have the same object—persons—but are distinguished from one another by the *manner* in which the beloved object is conceived and desired. Kindness is distinguished from natural lust by the manner of the desiring: desiring a person for their company and social intercourse is kindness; desiring a person for sexual intercourse is lust. In both cases we see the same pattern that emerged in the case of hope and despair. The passions are individuated by reference to their object, to the manner of their conception and opinions concerning the object (and other cognitive states), and to the behavioral effects the conceptions and opinions have. The passions are states in which mental representations play a very important causal-functional role. Kindness and lust are both a species of the simple passion of love. Kindness and lust are individuated from the simple passion by the object of the appetite (i.e. persons, not beer) and from each other by the manner of the desiring. I take this difference in the manner of desiring to involve a

difference in the manner of conceiving of the object and a difference in the expectations and ends involved in pursuing the object. The difference in "manner of conceiving" is a difference in the cognitive role of the conception: the conception of an object of kindness causes conceptions and features in inferential chains that different from those in which the conception of an object of lust features. The kind of ends and expectations involved in gratifying the appetite of kindness are conspicuously different from the ends and expectations of lust, and this difference in the manner of conception of the object yields differences in behavior.

As a final case, consider Hobbes's account of courage and the relationship between it and fear, anger, and indignation: "*Aversion* with the opinion of *hurt* from the object, FEAR; The same with the hope of avoiding that hurt by resistance, COURAGE; Sudden *courage*, ANGER" (*Lev*. vi, 84: 16-18). I think this case is illustrative because it shows Hobbes invoking the "diverse considerations" mentioned in *Leviathan* vi 84: 12-16 and shows his proto-functional analyses at work. When simple aversion features in different causal-functional relationships, it yields a diverse variety of mental states. Fear, courage, and anger are all aversive states. What distinguishes the passion of fear from a simple aversion is the role of opinion in the causal chain. An aversion toward *x* is an endeavor away from *x*, caused by the *x*-conception. But when that *x*-conception is accompanied by the opinion that the *x* will *cause harm to oneself*, we have a distinct mental state. I may have an aversion to Red Delicious apples, but I do not fear them in the way that I fear off-leash Pit Bulls. Both are aversions but my simple aversion to Red Delicious apples is different from my aversion to off-leash Pit Bulls. The former I conceive as gustatory abominations and so I just avoid Red Delicious apples. The latter

generate in me the distinct (and entirely justified) expectation that I shall meet a violent, gory end in the jaws of terrible death-machine, and I incline to flee Pit Bulls. The difference, according to Hobbes, is to do with the addition to my conception (which was the mental root of the aversion) of the opinion of harm attaching to the one and not the other. Hobbes does not say as much as he ought about just what this opinion consists in (his discussion of opinion and belief in both *Leviathan* and *Human Nature* tends to focus on specifically religious belief and faith), but based on his general comments concerning the nature of the conceptions, I suppose that the opinion will involve a foresight and anticipation of the harm off-leash Pit Bulls might cause. This is a crudely-stated functional analysis of fear: fear of *x* is a state of aversion caused by the idea of *x* and the expectation that *x* will cause harm, causing flight behavior.

Contrast this state with courage. Courage is differentiated from fear by the addition of hope. The hope that one may avoid the harm expected from the feared object by "resistance" characterizes the state of courage and makes it distinct from a simple aversion or the state of fear. Hobbes is, as before, basing his definition in part on introspection and experience. Our folk psychological theory fills out the extension of the concept of "fear" in a rough and ready way. The scientific psychologist does not need to *reject* this rough outline, simply because she believes fear is a physiological process. Introspection and experience set for the psychologist a target explanandum: whatever "fear" is, it is the mental state like *that*. Hobbes in his role as cognitive scientist is precisifying this intuitive notion. Our folk concept of courage is that it is a state that is much like the state of fear and probably does involve a fear-like affect—we speak of the courageous person resisting the inclination to flee, for example. A person resists this

inclination when in addition to the expectation of harm, they also have the hope that they can overcome the offending object's threat by force.[130] My fear of an off-leash Pit Bull converts to courage when I recall the pepper spray in my back pocket. We can point to various instances of courageous actions and persons, but Hobbes makes this intuitive notion more precise by specifying (in a rough sort of way) the kind of causal-functional state that courage is: courage is an aversion toward *x* and the opinion that *x* shall cause harm, caused by the conception of *x*, with the opinion that *x* can be resisted. The behavior of the fearful person and the courageous person will be different. What distinguishes fear from courage is the difference in the behavioral outputs, given the inputs. Fear and courage may have the same inputs, but the mental state of "being courageous" is distinguished from "being in fear" by its output. The fearful person inclines to flee the object of fear, while the courageous person inclines to dig in and meet the feared thing. And as we saw with the love and with the distinction between hope and despair, mental representations play an essential, constitutive role in the individuation of the passions. Courage is a complex causal chain terminating in an inclination to resist an object of fear by force, caused by the hope that the feared object can be resisted. Hobbes's view is not a simple behaviorism, for cognition and mental representation play an essential part in the

[130] I note that Hobbes is defining a *mental state* here, not a virtue and that as it is defined it is mental state animals can have too (cf. Aristotle *Nicomachean Ethics*, III.6-9). So the objection that courage involves a rational assessment and the intention to do the right thing and so on, is misplaced. As Hobbes has defined it, suicidal rashness based on a misapprehension of the odds still counts as courage. He is aware of this objection and that is why, for example, in the "review and conclusion" of *Leviathan*, he ranks courage as a socially disruptive passion. In that passage he goes out of his way to point out that he is peaking of "courage" in a particular sense: a psychological state characterized by "Contempt of Wounds, and violent Death," is a socially disruptive passion (1132: 17-18). Obviously he recognizes that he is using "courage" as a label for a disposition, not a moral virtue.

individuation of psychological states and his commitment to introspection does not put his psychological account at odds with his materialism.

The topic of fear arises in the "Third Set of Objections" too and there are very interesting parallels with Hobbes's discussion of the passion in *Leviathan* and *Human Nature*. Objecting to Descartes's claim in *Meditations* that willing and fear are special modes of thought that "add something more" to simple, representational features of conceptions (see AT VII: 37; CSM II: 25-26), Hobbes makes the following points:

> When someone wills, or is afraid, he has an image of the thing that he fears or the action that he wills; but what more does his thought include beyond this? This is not explained. Even if we grant that fear is a thought, it can only, as far as I can see, be the thought of the thing we are afraid of. For what is the fear of a charging lion if not the idea of a charging lion plus the effect which this idea produces in the heart,[131] which in turn induces in the frightened man that animal motion which we call 'flight'? Now this motion of flight is not a thought; so the upshot is that fear does not involve any thought, apart from the thought that consists in the likeness of the thing feared (AT VII: 182; CSM II: 128).

This passage is clear as day and about as close as Hobbes comes to just explicitly *giving* an unambiguous functional account of fear. What makes a mental state *fear*? Descartes wants to say that it is some special, additional feature of an idea, because he wants to

[131] Haldane and Ross have the following: "In what respect does the fear produced by the onrush of a lion differ from the idea of the lion as it rushes on us, together with its effect (produced by such an idea in the heart)…?" (*The Philosophical Works of Descartes*, vol. 2 (Cambridge: Cambridge University Press, 1911) 68). The Haldane and Ross translation captures the point that Hobbes is thinking of "ideas" in the broad sense, covering both *experience* and *imagination*—as "corporeal images" impressed upon the senses by external objects.

locate the feeling and consciousness of fear in the rational soul. But in response Hobbes makes a mode/content distinction and gives a rough functional account of fear, consistent (on his own terms) with his reductive materialism. The idea of the onrushing lion has the *lion* as its content. The *fear of the lion* is not part of the content of the idea of the feared lion *per se*; rather, the idea of the lion plays an essential role in the mental state of *fearing* the lion. Fear is a complex behavioral state of an organism, not an idea, but it is a state in which mental representations and their cognitive content play an essential causal role. According to this passage it is a disposition to flee from an object caused by the idea of that object (and presumably, in conformity with *Leviathan* vi.16, an opinion that that object shall cause harm). It is the idea of the lion, caused by the sense of the onrushing lion, "plus the effect in the heart" of the idea that "induces" flight behavior (and though he does not say so here, that is a species of pain). As I emphasized in the introduction to chapter 1, Hobbes does not have a fully worked-out functional account of any mental state (he will not give us any "Ramsey sentences," for example), but he has the right intuitions and is definitely trying to characterize fear in terms of its causal-functional role. What is "fear"? A state characterized by a certain input/output function: the idea of a charging lion is your input; the flight response is your output. Fear plays a particular role in the overall behavioral and cognitive output of an organism. That is what makes *that* state of the body the state of *fear* and not merely a non-mental physical happening. So, for example, although the spleen's secretion of bilirubin and the state of being in fear are both motions in the body, the former does not count as a mental state while the latter does. The secretion of bilirubin from the spleen is not the right kind of causal process.

Fear is a causal process beginning in ideas and terminating in behavior. Motions of *that* sort in a physical system are "fear."

Because ideas and phantasms play such a crucial role in the individuation of the passions, some commentators are inclined to read Hobbes as claiming that "the motions that constitute appetite and aversion are part of the perceptual phantasm, the idea, or the memory of the object perceived," and that "the modifications of vital motion effected by the perceptual stimuli are a constitutive part of the idea or phantasm itself"[132]and so there is no sharp distinction to be drawn between the cognitive states and affective states in Hobbes's philosophy of the mind.[133] But this is a mistake. I grant that there is certainly a sense in which the phantasms of sense and ideas in the imagination are, *insofar* as they are *motions*, difficult to distinguish from the appetites and passions. However, as I have been arguing, passions and cognitive states are functional states and are distinguished from each other by their causal-functional roles. Cognitive content, through the action of the phantasms and ideas on the heart, plays a causal role in the passions. In this sense, the identity conditions of a given passion are partly constituted by reference to the ideas and phantasms. Nevertheless, ideas and phantasms are mental states distinct from the passions. Ideas and phantasms *represent* objects and their accidents. These representations can feature as *elements* of other mental states, like fear, hope, love, and courage, without thereby *being* fears, hopes, loves, and states of courageousness. By analogy, I use the name 'Archie' to refer to a particular dog and in assertions that role is

[132] Samantha Frost "Appetite and Aversion" in *The Bloomsbury Companion to Hobbes*, ed. S.A. Lloyd, (London: Bloomsbury Academic, 2013), 118.
[133] For a book-length development of thi basic idea, with a focus on the consequences for Hobbes's political theory, see Samantha Frost, *Lessons from a Materialist Thinker: Hobbesian Reflections on Ethics and Politics* (Palo Alto, CA: Stanford University Press, 2008). See also Michael Losonsky "Passionate Though: Computation, Thought, and Action in Hobbes," 245-266.

(fairly) straightforward: I say "Archie is a little black dog" and I convey information about Archie. But consider the function of the proper name 'Archie' in the following: "Where is Archie?"; "Please feed Archie."; "Make Archie stop that barking!" The name 'Archie' in each case still refers to a particular dog—that is the semantic function of the name. But it does not *stop* being a linguistic placeholder referring to Archie just because it is being used in non-assertoric speech acts. And just as the same name can feature in distinct speech acts, yet retain is basic semantic identity, so too a phantasm remains a representation of an object of perception, though featuring in a passion. This is just the distinction between semantic content and mode of utterance.[134]

The above-quoted passage from the "Third Set of Objections" implicitly draws a content/mode distinction. Hobbes in that passage distinguishes the idea of a lion from the *fear* of a lion. The phantasm or idea of a lion is a *cognitive* state: its functional role is to be a mental "placeholder" for the real, onrushing lion. It represents the lion. What makes the state of fear a state of fearing *a lion*, rather than fearing a recession, is the role of the mental representation *of* a lion in the passion. The passions all "needs must" have objects because they are intentional mental states. Passions are direct *at* objects and (according to *Leviathan* vi, 80: 12-16) distinguished by their objects. This is true even in the case of what Hobbes calls "panique terror," which is a fear generated "without the apprehension of why, or what, …[which arises because] there is alwayes in him that so feareth first, some apprehension of the cause, though the rest run away by Example; every one supposing his fellow to know why [and so therefore] this Passion happens to none but in

[134] See John Haugeland *Artificial Intelligence*, 90-91 on the relevance of the mode/content distinction to CTM and artificial intelligence. A mode/content distinction is usually drawn at the level of propositional content; however, this detail does not affect the basic philosophical point I am making.

a throng (*Lev.* vi, 86: 26-30; see also *De Hom.* xi.4). In the grip of "panic terror," although people do not *perceive* what it is that is causing people to flee, the sight of the fleeing crowd causes the belief that they flee *something* (because fear is a flight response, directed at an object) and that something-they-flee is the object of the "panic terror." The point is that the same phantasm, the same *cognitive content*, can feature in distinct mental states; it all depends on the "mode" or the causal-functional role of the phantasm in the overall state of the organism. Distinct mental act-types are individuated not by distinct *ideas*, but by the role of the ideas in the mental state. (I say mental act-types, because fear of bologna sandwiches and fear of lions are both *fear*, but distinct *fearings*). Hence, although ideas and phantasms have a role in affective states and passions (and, according to the account of *Human Nature*, *possess* affective valence), Hobbes can and does recognize a distinction between affective and cognitive states.

5. Deliberation

Hobbes's theory of the passions is often criticized as implausibly reducing deliberation to nothing more than a succession of emotional states. With these functional characterizations of the passions before us, we are now in a good position to see why the criticism that Hobbes's materialist reduction of voluntary action and deliberation makes deliberation simply a "succession of emotional states" is off the mark.[135] This criticism is related to the view that Hobbes has rendered the mind too "passive" in that he appears to

[135] Gert "Hobbes's Psychology," 162-163.

treat cognitive processes as "events" that simply "happen" in the body.[136] Sometimes commentators regard this as a criticism of Hobbes's view of both the human and animal mind,[137] but the recent proponents of the "made with words" thesis claim that Hobbes sees "passivity" as an affliction of the natural, non-worded mind that is overcome in our species by the invention of language.[138] In one way or another, these commentators all hold that Hobbes's account of the natural, non-linguistic mind's faculty of deliberation and action does not yield a satisfactory account of genuine deliberation and action. What these commentators have failed to appreciate, I argue, is that Hobbes gives a causal-functional account of deliberation and voluntary action. Recognizing that deliberation is part of a causal-functional account of voluntary action helps to blunt the force of these criticisms. Deliberation and action do not just "happen in" or "to" an organism; rather, they are defined and constituted by their causal-functional role in the total behavioral and psychological output of an organism. Deliberation is an activity *of an animal*, not just an event it its brain. In this section I examine this account and I argue that by looking at his deployment of this account in defense of his compatiblism against John Bramhall's objections clarifies this aspect of Hobbes's position. If deliberation and action are "too passive," then that is a problem for materialism and functionalist accounts generally, not Hobbes specifically. In the next chapter I apply the observations I make here to the "made with words" claim that the human mind is somehow made "active" by the voluntary use of speech.

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[136] Tom Sorell objects that Hobbes makes an action a mere "events that have occurred" and makes the relationship between an agent and her actions "a relation between events that take place *in* an agent, and their effects" *Hobbes*, 94-95.
[137] As in Gert "Hobbes's Psychology" and Peters *Hobbes*.
[138] Philip Pettit *Made with Words* (Princeton: Princeton University Press, 2008).

Deliberation is a characterized functionally as a process by which voluntary action is determined. In deliberation, practical judgments are formed, that are then executed in an act of willing. Conceptions of the object of desire cause a regulated train that leads from the conception of the end to the means. Deliberation settles on the means judged to be within the power of the agent (based on the organism's conception of its own power), and the conception of the means causes the execution of a voluntary action. Following his discussion of the passions in *Leviathan* Hobbes gives the following definition of deliberation:

> When in the mind of man, Appetites, Aversions, Hopes, and Feares, concerning one and the same thing, arise alternately; and divers good and evill consequences of the doing, or omitting the thing propounded, come successively into our thoughts; so that sometimes we have an Appetite to it; sometimes an Aversion from it; sometimes Hope to be able to do it; sometimes Despaire or Feare to attempt it; the whole summe of Desires, Aversions, Hopes and Fears, continued till the thing be either done, or thought impossible, is that we call DELIBERATION (*Lev*., vi, 90: 21-28).

Hobbes gives a similar definition at *Human Nature* xii.1 and 2 where he reminds us of the connection between the passions and deliberation. In *Human Nature* xii.1 he claims:

> [The] *external* objects cause *conceptions*, and conceptions, *appetite* and *fear*, which are the *first unperceived beginnings of our actions*: for *either* the actions immediately follow the first appetite, as when we do anything upon a sudden; *or else* to our first appetite there succeedeth some conception of evil to happen to us by such actions, which is fear, and which holdeth us from proceeding. And to that

> fear may succeed a new appetite, and to that appetite another fear alternatively, till the action be either done, or some accident come between, to make it impossible; and so this alternate appetite and fear ceaseth. This *alternate succession of appetite and fear* during all the time the action is in our power to do or not to do, is that we call *deliberation* (*HN* xii.1).

I argued in the previous section that Hobbes's theory of the passions is a causal-functional account. A passion is not simply a *feeling*: it is a complex functionally determined state of a whole organism. An organism has an appetite for an object when the conception of that object causes the inclination (the endeavor) to pursue the object of the conception (and vice versa for aversive states). Deliberation involves the consideration of the "good and evill consequences of the thing propounded" which must involve raising ideas in the imagination representing those "things" being "propounded." Hobbes is clear that both humans and nonhuman animals can deliberation: "[t]his alternate Succession of Appetites, Aversions, Hopes and Fears, is no lesse in other living Creatures then in Man: and therefore Beasts also Deliberate" (*Lev*. vi 92: 7-8). What makes a cognitive process *deliberation* rather than some other kind of state is its functional role. Deliberation plays a constitutive role in voluntary activity. The appetite for an object sends causes a train of regulated thought, searching out the means. An organism deliberates as it imagines the various consequences of these possible actions. Deliberation is always about things that are within our power to affect so "of things past, there is no *Deliberation*; because manifestly impossible to be changed: nor of such things known to be impossible, or thought so" (*Lev*. vi 92: 1-3). These imagined consequences are conceptions, and according to Hobbes's account of the passions, they generate

endeavors "to do or omit" and so the deliberative process is also a succession of appetites and aversions, which in turn determine the behavior of an organism. What we see here is an extension of that causal-functional account into Hobbes's theory of deliberation and voluntary action. The succession of thoughts in a guided train of thought is deliberation in virtue of this systematic, functional role. The alternation of appetites and aversions Hobbes is referring to here is a succession of behavioral inclinations, caused by conceptions and guided by a general desired end. Deliberation is a cognitive process determining the actions of organisms. The (proto)-functional nature of Hobbes's account of deliberation underlies his point that "it is called *Deliberation*; because it is a putting an end to the *Liberty* we had of doing, or omitting, according to our own Appetite, or Aversion" (*Lev*. vi 92: 5-6; also *HN* xii.1). Deliberation is so-called because it is a "de-liberating" of the will. Prior to our having ended our deliberation, we had the possibility of willing or nilling this or that as we had an appetite to "do" or "omit"; but deliberation, since it determines the will, puts an end to this liberty. The functionalist account implied here gets overlooked, I suspect, because of the sense that Hobbes is making an ironic joke. I think he clearly does have his tongue firmly in his cheek when he asserts this, but nevertheless it does illustrate a genuine point. The causal-functional role of deliberation is to determine the will—to "de-liberate" it—and to cause action. That is what the succession of ideas does that makes it deliberation: the train of thought tends to the consideration of a means to the end desired, causing the appetite for the means, causing an organism to act.

Deliberation determines the actions of an organism by terminating in an act of willing, or choice. Hobbes defines the will in *Leviathan* this way:

> In *Deliberation*, the last Appetite, or Aversion, immediately adhearing to the action, or to the omission thereof, is that wee call the WILL; the Act, (not the faculty,) of *Willing*. And Beasts that have *Deliberation*, must necessarily also have *Will*. The Definition of the *Will*, given commonly by the Schooles, that it is a *Rationall Appetite*, is not good. For if it were, then could there be no Voluntary Act against Reason. For a *Voluntary Act* is that, which proceedeth from the *Will*, and no other. But if in stead of a Rationall Appetite, we shall say an Appetite resulting from a precedent Deliberation, then the Definition is the same that I have given here. *Will* therefore *is the last Appetite in Deliberating* (*Lev*. vi, 92: 13-22; cf. *HN* xii.3).

There are a few points to note here. The first is that conceptions and the content of conceptions are an important part of the explanation of the process for Hobbes. Appetites and aversions are, as I showed in the last section, directed at or "fromward" objects of conceptions, which play a causal role. In *Human Nature* Hobbes emphasizes that the appetites and aversions are themselves not voluntary, but are caused by the conceptions of objects:

> *Appetite*, *fear*, *hope*, and the rest of the passions are *not* called *voluntary*; for they proceed *not from, but are the will*; and the will is not voluntary: for, a man can no more say he will will, than he will will will, and so make an infinite repetition of the word [*will*] …(*HN* xii. 5).
>
> Forasmuch as *will to do* is *appetite*, and *will to omit*, *fear*; the *cause* of *appetite* and *fear* is the *cause* also of our *will*: but the propounding of the benefits and of harms, that is to say, of reward and punishment, is the cause of our appetite, and

> of our fears, and therefore also of our wills… and consequently, our *wills* follow our *opinions*, as our *actions* follow our *wills* … (*HN* xii.6).

These passages show that Hobbes conceives of the deliberative as cognitive. The conceptions—mental representations of extra-mental bodies and their accidents—determine the will through the process of deliberation, "the propounding of the benefits and of harms" that are expected to follow upon a course of action. Note again that deliberation is not merely a succession of brain states either—organisms deliberate.

This bring me to my second point. In the passage in which Hobbes defines the will (quoted above) *Leviathan* chapter vi, he goes out of his way to mention that despite his dissatisfaction with the Scholastic faculty-psychologist's definition of the will as a "rational appetite," there is a sense in which he is perfectly happy to call the will a "rational appetite." What he does not like about the Scholastic's definition is their insistence that the "rational appetite" is a kind of special, rational *faculty* of deliberation. Hobbes rejects the Scholastic proliferation of faculties, preferring to explain all cognitive activity by the operation of the imagination. Deliberation being one such case. But so long as by "rational appetite" one means only "act of will preceding from a process of deliberation," Hobbes is happy with the term. Deliberation is a consideration of means that one has observed tending to a desired goal.

But what makes deliberation a rational process and not simply a happenstance of biophysics? Unfortunately, Hobbes's view is not very well-articulated, but his intuitive grasp of the basic insights of the functionalist account of the mind gives him a sketchy outline of a plausible answer. Since deliberation is a process that determines goal-directed behavior, deliberation is a complex psychophysical process of an *organism* and

not simply a "happening" in the head. The conception of the object desired is just part of the whole state in which an appetite consists. That conception determines a certain behavioral response in the organism: it inclines an organism to pursue that object. That whole state is the appetite. And so when Hobbes claims that deliberation is a succession of appetites, we should understand him as asserting that deliberation is a kind of complex causal-functional process an organism undergoes. The conceptions, as they do in the passions, play a critical causal role. The execution of that judgment is an act of will—the last desire or passion in a chain of deliberation that moves a sentient being to act. It is a causal process, certainly, but it is a causal process of a *special sort*. Thus, Hobbes's account of regulated discourse of the mind is supposed to slide smoothly into his account of the passions and voluntary action. This is why his discussion of the former always precedes his discussion of the latter. The process of deliberation is explicated as a special case of a regulated train of thought. Deliberation just is a regulated train of thought. The train of thought as regulated, guided, and governed by the "scope or end" of some desire. The thought of the end desire introduces the thought of the possible means to secure the end. Deliberation directs and guides an organism to the satisfaction of their desires on the basis of experience and associative learning. The process begins with a conception of an object desired and terminates with an execution of judgment—*viz*. what means, within the power of an organism to enact, that it has trained by experience to believe conduce to the conceived-of end. Deliberation occurs when the end over which the organism's train of thought discourses actuates the organism's voluntary motions. As I mentioned in the previous chapter, Hobbes is trying to give a scientific account for folk-psychology's belief-desire model of action. His definition of deliberation fits in with this account. The

sentient deliberates over the means to the end—alternating between the desire for this possible means and that, as it weighs the expected goods—and the process finally terminates with a "deliberation" and determination of the will, which is an actuating passion. That's the causal-functional role of deliberation: it is a process beginning in conceptions, working through passions, to determine the actions of an organism by executing judgment.

I emphasize the point that it is the *organism* and the *animal* that deliberates for it is illustrative of the manner in which Hobbes's causal-functional accounts are supposed to work dialectically against the scholastic, faculty psychologist. The point is that there is no need for any cognitive faculty beyond the imagination to account for the myriad mental powers of which an organism is capable. To further argue my case, I turn to once again to Hobbes's exchange with Bramhall. In the *Questions Concerning Liberty, Necessity, and Chance*, the debate between Hobbes and Bramhall concerns the problem of whether liberty of action and will can be reconciled with a strict causal determinism. Hobbes argues a version of the compatibilist line: strictly, no one has free will, but this does not compromise our ability to act freely, rationally, and voluntarily, nor does it affect our moral responsibility for the actions we do voluntarily take.[139] Bramhall takes up the opposed, scholastic point of view: determinism and freedom are incompatible and human beings have a special faculty responsible for our ability to perform morally

[139] Hobbes, along with Hume, is often cited in introductory surveys as an early compatibilist (e.g. Thomas Pink, *Free Will: A Very Short Introduction*, (Oxford: Oxford University Press, 2004) 55-72. But I do have some reservations. I would point out that present-day compatibilists—e.g. David Lewis—are more likely to say that *free will* is compatible with determinism. I suspect this apparent disagreement between Hobbes and the present-day compatibilist is merely a verbal disagreement (and that Lewis, et al. have picked a misleading way of expressing their view), but in conversation Brian Looper has suggested to me that there may really be a deeper disagreement here.

significant, free acts of will, in the modern "libertarian" sense of free will. The details of Bramhall's view are not important for my discussion here. What is important about Bramhall's position—or to Hobbes's understanding of Bramhall's position, at any rate—is that this special human capacity of free will is located in a special mental faculty, a *rational will*. Humans have rational wills and act freely because the rational will is determined by reason and not subject to the necessity of material and efficient causes. The debate between Hobbes and Bramhall takes on much the same dialectical structure as the debate between Hobbes and Descartes: Bramhall insists, while Hobbes denies, that there is a need for some special, non-material, rational cognitive faculty beyond the imagination to account for human mental activity. As Bramhall understands the debate, the issue is to do with rational deliberation and judgment. Bramhall's position is that human freedom of the will is due to a rational faculty of willing, in virtue of which we can, but animals cannot, genuinely deliberate and judge for ourselves what course of action we shall take. We make genuine, voluntary actions because of this "deliberative faculty." Hobbes, on the contrary, argues that there is no such faculty—he thinks it is an unintelligible piece of Scholastic philosophy. It is, furthermore, unnecessary to posit such a faculty anyway, for the imagination being sufficient to the task. The *Questions Concerning Liberty, Necessity, and Chance* is a convoluted work, with an almost medieval "*quæstio*" character about it, and the unaccustomed can easily loose the thread of the argument.[140] The *Questions Concerning Liberty, Necessity, and Chance* is an odd text, but it is worth taking the pains to examine it.

[140] A word about the structure and genesis of the work is in order. Sometime in 1645 the Marquis of Newcastle (Sir Charles Cavendish), then in exile in France, asked Hobbes and Bishop John Bramhall to write up their respective positions and arguments concerning the compatibility of human liberty and freedom of the will with causal determinism. Apparently, the event was occasioned by a lively dinner-table

In *Of Liberty and Necessity*, one of the arguments Hobbes presents for his position derives from the definition of "deliberation" and "will": "he that reflecteth so on himself, cannot but be satisfied, that *deliberation* is the *consideration of the good and evil sequels of an action to come*…the *will* is the *last act of our deliberation*" (*L&N, EW* iv: 275). Citing Hobbes's claim that "when a man *deliberates* whether he shall do a thing or not do it, that he does nothing else but consider whether it be better for himself to do it or not to do it" (*L&N, EW* iv: 273), Bramhall asserts:

> If I did not know what deliberation was, I should be little relieved in my knowledge by this description. Sometimes he [sc. Hobbes] makes it to be a consideration, or an act of the understanding; sometimes an imagination, or act of the fancy; sometimes he makes it to be an alteration of passions, hope and fear. Sometimes he makes it concern the end, sometimes to concern the means. So he makes it I know not what ("The Bishop's Reply" xxvi, *EW* v: 358).

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debate between Hobbes and Bramhall on the topic. Hobbes's wrote his *Of Liberty and Necessity* in response to a pamphlet written Bramhall and, presumably, presented to both Hobbes and the Marquis. The exchange was never meant for public consumption; nevertheless, sometime in 1654 an unauthorized version of *Of Liberty and Necessity* surfaced and was published without Hobbes's permission or (apparently) his knowledge. Bramhall suspected that Hobbes had secretly undertaken the publication (despite the latter's protestations of innocence) and published his *In Defense of True Liberty* in response. It is a point-by-point criticism of Hobbes's *Of Liberty and Necessity*. Hobbes published *Questions Concerning Liberty, Necessity, and Chance* in reply. The baroque structure of this work arises from the fact that it is *itself* a point-by-point critique of Bramhall's point-by-point critique of *Of Liberty and Necessity*. *Questions Concerning Liberty, Necessity, and Chance* reproduces the entire text of *Of Liberty and Necessity* along with Bramhall's replies. Each of these is then followed by Hobbes's "animadversions" upon each of Bramhall's replies. In his "animadversions" Hobbes sometimes truncates Bramhall's text (which is a forgivable practice, since Hobbes reproduces the whole text faithfully when he quotes Bramhall's criticisms in the "Bishop's Reply" sections), so in what follows, I take Bramhall's arguments from Hobbes's quotations of *In Defense of True Liberty* that precede each "animadversion."(See Noel Malcolm, "A Summary Biography of Hobbes" in Tom Sorell, ed., *The Cambridge Companion to Hobbes* (Cambridge: Cambridge University Press, 1996), 30-31; also A.P. Martinich *Hobbes: A Biography*, (Cambridge: Cambridge University Press, 1999), 195-203).

A constant theme of Bramhall's replies to Hobbes's arguments is the accusation that Hobbes slurs over subtle and (allegedly) important distinctions (such as, for example, the distinction between "metaphysical goodness," "natural goodness," and "moral goodness" (see "The Bishop's Reply" xiv, *EW* v: 170)). Bramhall's argument fits this pattern: Hobbes's definitions are sloppy and ride roughshod right across crucial distinctions. As I understand Bramhall's complaint, the charge is that Hobbes's definition of deliberation is a failure because it does not specify (to his satisfaction) which faculty does the deliberating: if deliberation is "a consideration," then is deliberation is an act of the understanding and if it is "an imagination," then it is an act of the fancy, but which is it? Neither has Hobbes properly specified the subjects about which we are properly said to deliberate: is it the ends or just the means? Note too that Bramhall shares the worry that Hobbes's definition of deliberation makes it a mere "succession of hopes and fears." And so, Bramhall proposes the following definition of deliberation, in which he draws a distinction between "definite consideration" and "indefinite consideration" of the means to an end: "Deliberation is an inquiry made by reason, whether this or that, definitely considered, be a good and fit means, or, indefinitely, what are good and fit means to be chosen for attaining some wished end" ("The Bishop's Reply" xxvi, *EW* v, p.358).

Hobbes's reply to this criticism is telling and worth quoting extensively. Hobbes's "animadversion" in response to the criticism (besides including the predictable rejoinder that Bramhall's subtle and important distinctions really are nothing but unintelligible schoolman's jargon) also clarifies his views on the role of the imagination in his philosophy of mind and sheds some light on how he understands his own reduction of the operations of the mind to operations of the faculty of the imagination:

> If the Bishop had observed what he does himself, when he deliberates, reasons, understands, or imagines, he would have known what to make of all that I have said in this Number [sc. at *EW* iv: 273, quoted above]. He would have known that consideration, understanding, reasons, and all the passions of the mind, are imaginations. That to consider a thing, is to imagine it; that to understand a thing, is to imagine it; that to hope and fear, are to imagine the things hoped for and feared. The difference between them is, that when we imagine the consequences of anything, we are said to consider that thing; and when we have imagined anything from a sign, and especially from those signs we call names, we are said to understand his meaning that maketh the sign; and when we reason, we imagine the consequence of affirmations and negations joined together; and when we hope or fear, we imagine things good or hurtful to ourselves: insomuch as all these are but imaginations diversely named from different circumstances: as any man may perceive as easily as he can look into his own thoughts (*QCLNC*, "Animadversion" xxvi, *EW* v: 358-59).

We have seen this story before. Hobbes reduces all of the cognitive, representational faculties of the mind to the imagination: all conceptions are ideas and phantasms of sense, individual representations of extra-mental bodies and their accidents, decaying after the act of sense. Again, he takes this to be an empirical claim, supported by the introspective methodology announced, for example, in the introduction to *Leviathan.* Mental acts involving cognitive states, such as imagining, conceiving, considering, understanding, deliberating, willing, are all explained as operations of this fundamental—and perfectly material—cognitive faculty. All of these diverse acts are "imaginations"—

ideas and phantasms copied from sense perception—that are "diversely named from different circumstances." This is the very same language we saw Hobbes employ in his discussion of the difference between memory and imagination and in his definitions of individual passions. Hobbes claims that a memory is a conception in the imagination but which "for divers considerations hath divers names" (e.g. *Lev.* ii, 28: 23-24). But as I argued there he does not mean that memory and imagination are the same mental power; rather, he intends to make what we would today call a functional distinction between the two. He means that one and the same mental representation can play two different roles in different mental states—*viz*. *qua* memory and *qua* idea. A passion is not *just* an aversive or appetitive response. It is an appetitive or affective response, caused by the conception—the idea in the imagination—of some extra-mental body, that inclines an organism to pursue or to flee that object. The passions are individuated according to their objects and according to the behavioral response induced. As we saw, it is a functional account. Hobbes's point there was that the only cognitive faculty necessary to account for the passions and their effect on is the imagination. The conception of an object of a passion causes appetitive or aversive behavior with respect to that object. So long as the conceptions play the right kind of causal role, then there is no need to posit any other faculty. There is no need, for example, for an "appetitive soul" since to have an appetite for an object is just to be determined to seek out and obtain that object by its conception in the imagination: "to hope and fear" is just to "imagine the thing hoped for or feared." We saw Hobbes argue something to this effect against Descartes in the Third Set of Objections: the fear of a lion is not any extra "thought" or cognitive state above and beyond the imagination of a lion, "plus the effect which this idea produces in the heart,

which in turn induces in the frightened man that animal motion which we call 'flight'" (AT VII: 182; CSM II: 128). To fear a lion is just to be in a certain functional state, in which the conception of the lion plays a special, causal role. A *person* fears lions when the conception of lions causes a flight response.

That is just the sort of thing that he claims in reply to Bramhall, only in the "animadversions" he makes it clear that he conceives of a wide range of powers in these causal-functional terms (and I note, *reason* makes the list). Hobbes is claiming that Bramhall's complaint that he does not adequately define "deliberation" because he does not identify the deliberative faculty is misplaced, for Hobbes thinks deliberation is not a power of *any* faculty; it is a process an *organism* engages in, depending on what causal-functional role the ideas in the imagination play. Hobbes continues and goes on the offensive, attacking Bramhall's Scholastic, faculty psychology:

> But to him that thinketh not himself upon the things whereof, but upon the words wherewith he speaketh, and taketh those words on trust from puzzled Schoolmen, it [sc. Hobbes's definition of deliberation] is not only hard, but impossible to be known. And this is the reason that maketh him say, I make deliberation he knows not what. But how is deliberation defined by him? "It is," saith he, "an inquiry made by reason, whether this or that definitely consider, be a good and fit means; or indefinitely, what are good and fit means to be chosen for attaining some wished end" [*QCLNC*, "The Bishop's Reply" xxvi, *EW* v: 358] If it were not his custom to say, the understanding understandeth, the will willeth, and so of the rest of the faculties, I should have believed that when he says deliberation is an inquiry made by reason, he meaneth an inquiry made by the man that reasoneth;

> for so it will be sense. But the reason which a man useth in deliberation, being the same thing that is called deliberation, his definition that deliberation is an inquiry made by reason, is no more than if he had said, deliberation is an inquiry made by deliberation; a definition good enough to be made by a Schoolman. Nor is the rest of the definition altogether as it should be; for there is no such thing as an "indefinite consideration of what are good and fit means"; but a man imagining first one thing, then another, considereth them successively and singly each one, whether it conduceth to his ends or not (*QCLNC*, "Animadversion" xxvi, *EW* v: 359-60).

Hobbes criticizes Bramhall's Scholastic faculty psychology on the grounds that it would make deliberation an action performed not by *the man*, but by *his reason*. Hobbes's view, as I have been stressing, is a functionalist account of cognitive mental states. The human being deliberates and the imagination, the cognitive faculty, plays a causal role. The deliberative process is a process of a *whole* organism. The imagination retains the images of the objects of sense; these conceptions (by transmitting their motion to the heart) cause appetitive and aversive responses. So we say that a *person* has a passion. Some people fear dogs—the fear of dogs is a complex functional state, one which determines certain predictable behaviors, given certain stimuli. A person who fears dogs is inclined to engage in aversive behavior toward them. Hobbes's explanation for this involves the imagination. A person with a fear of dogs is inclined, by the conception of dogs, to move "fromward" dogs and to take, presumably, positive steps to avoid them. The "inputs" of Hobbes's causal-functional story are the conceptions—copied from sense experiences—the "outputs" are behavioral responses. Hobbes gestures at the same kind of account here.

There is no "deliberative reason" that is used in an inquiry concerning means and ends. All there is, as far as the cognitive faculties are concerned, is the imagination of various goods and evils that the deliberator anticipates—trains of thought that lead from the desired end, through various potential means, regulated by the hope or fear for what events are imagined to follow. These conceptions of things hoped for and feared, following the account Hobbes gave us of the passions, actuate and execute the judgment of the organism when it ends deliberation. That actuating passion, at the end of a train of deliberation, is the will. It is a desire or an aversion for some object, caused by the conception of that object and the hope it can be attained (or avoided). That *is* a functional account. Sketchy and rudimentary, yes; but it is a recognizable functionalist story nonetheless.

The point that deliberation is not "an inquiry by reason" for reason is not a part or faculty of a person, but an ability possessed by a whole person, surfaces again in the very next "animadversion." Hobbes's reply to Bramhall's objection in this "animadversion" is interesting for our purposes, for it shows Hobbes *stressing* the *continuity* between humans and nonhuman animals in an effort to deflate the pretentions of reason. There Hobbes is responding to Bramhall's accusation that he "confounds a voluntary act with a free act" on the grounds that Hobbes has muffed an important distinction:

> A free act is only that which proceeds from the free election of the rational will after deliberation; but every act that proceeds from the sensitive appetite of man or beast, without deliberation or election, is truly voluntary (*QCLNC*, "The Bishop's Reply" xxviii, *EW* v: 363).

Therefore, Hobbes's position—that the will is not free, but that voluntary actions proceed from deliberation—is confused. Voluntary actions may proceed from the "sensitive appetite," common to humans and nonhuman animals, but only the "free election of the rational will" proceed deliberation and make an act freely done. That is, as I understand Bramhall, a version of the worry we saw above—Hobbes's theory of action is makes voluntary activity just a thing that "happens" to an agent, not a thing an agent *does*. Here the difference is that Bramhall is deploying this criticism in an objection to Hobbes's compatibilism: there must be a faculty of deliberation in virtue of which humans are capable of deliberating. Animals are driven by the necessity of the passions; human beings genuinely deliberate. Hobbes replies:

> So [according to Bramhall] my error lies in this, that I distinguish not between a rational will and a sensitive appetite in the same man. As if the appetite and will in man or beast were not the same thing, or that sensual men and beasts did not deliberate, and choose one thing before another, in the same manner that wise men do. Nor can it be said of wills, that one is rational, the other sensitive; but of men. And if it be granted that deliberation is always (as it is not) rational, there were no cause to call men rational more than beasts. For it is manifest by continual experience, that beasts do deliberate (*QCLNC*, "Animadversions" xxviii, *EW* v: 365).

Once again Hobbes makes the point is that there is no *faculty* which does deliberating, or that wills, or has appetites. It is, rather, the *animal* as a *whole organism* that deliberates, wills, and appetites. A person's *will* is not rational or sensitive: a *person* is rational or sensitive. I note too that Hobbes obliquely accuses Bramhall of chauvinism in this

passage. “Continual experience” makes it “manifest” (as it does) that animals deliberate—they do clearly act voluntarily on the basis of thought, *willing* this over that, by what good they expect to befall themselves, consequent to willing this or that. Animals may not guide their deliberations by appeal to general principles, or by accurate, long-term forecasting of the consequences of their actions, but they do deliberate.

I conclude with one final look at the exchange. The back and forth between Bramhall and Hobbes takes many different tacks, but one issue that resurfaces is the issue of moral responsibility. This is no surprise, since one of the main arguments an incompatibilist like Bramhall is likely to make is that there must be a faculty of free choice that is not necessitated by any prior causes to account for moral responsibility. In one stretch of the *Questions Concering Liberty, Necessity, and Chance*, Bramhall makes an argument along these lines, alleging that, if Hobbes’s position is correct, then there is no proper sense in which one can be punished or rewarded, or held up properly for praise and blame. The details of the argument need not concern us. What matters is that during the course of the discussion, Bramhall the debate turns to the proper role of reward and punishment on Hobbes’s compatibilist picture. Hobbes claims that it is for the purpose of “framing and conforming the will to the good,” and that retributivist punishments have no moral basis (see e.g. *L&N*, *EW* iv and *QCLNC*, *EW* v: 130-225 and 228-238) Bramhall claims in the course of his reply that animals cannot, strictly, learn by reward and punishment—effecting their behavior “by their backs or by their bellies, by the rod or by the morsel” is nothing but “a shadow or resemblance of rewards and punishments” (*QCLNC*, *EW* v: 173). Why is this? It is because:

> [w]hen brute creatures do learn any such qualities [by 'rod and morsel'], it is not out of judgment or deliberation or discourse, by inferring or concluding one thing from another, which they are not capable of…[rather] they remember that what they did after one manner, they were beaten; and when they did after another manner, they were cherished; and accordingly they apply themselves. But if their individual actions were absolutely necessary, fear or hope could not alter them ("The Bishop's Reply" *QCLNC*, *EW* v: 173-74).

Hobbes's reply shows very clearly his attitude toward the cognitive capabilities of nonhuman animals (and Bramhall):

> Does not the Bishop know that the belly hath taught poets, and historians, and divines, and philosophers, and artificers, their several arts, as well as parrots? Do not men do their duty with regard to their backs, to their necks, and to their morsels, as well as setting-dogs, coy-ducks, and parrots? Why then are these things to us the substance, and to them but the *shadow* or *resemblance* of rewards or punishments?
>
> …
>
> If the Bishop had considered the cogitations of his own mind, not when he disputeth, but then when he followed those businesses which he calleth trifles, he would have found them the very same which he mentioneth; saving instead of *beating*, (because he is exempt from that), he is to put *in damage*. For, setting aside the discourse of the tongue in words of general signification, the ideas of our minds are the same with those of other living creatures, created from visible,

> audible, and other sensible objects to the eyes and other organs of sense, as their's are. For as the objects of sense are all individual, that is, singular, so are all the fancies proceeding from their operations; and men reason not but in words of universal signification, uttered or tacitly thought on ("Animadversions" xiv, *QCLNC*, *EW* v: 196-97).

This is exactly what he should say in reply to Bramhall. The process the animals engage in when they perform actions—a process involving only the senses, learning by association and experience, and imagination—had better be capable of determining voluntary action as our own and count as deliberation. They had better be able to make judgments and infer or conclude "one thing from another," for otherwise Hobbes's compatibilism is in trouble. Animals are every bit as capable of rational, deliberate action as we are and yet animal behavior and cognition are explicable materially. Since the faculties of animals in virtue of which they are able to think and to understand and deliberate are those which we share with them, human behavior and cognition should be likewise explicable, by appeal to only those faculties. One might find it an implausible view (I for one do not), but Hobbes is pretty clear. Hobbes affirms what Bramhall denies: animals are capable of learning and acting judgment and deliberation and discourse, and this they do "by inferring or concluding one thing from another."

The only exception Hobbes mentions and the only one he recognizes is that we are capable of reasoning in "words of general signification." This is an important point: Hobbes is claiming that nonhuman animals can *think* in every sense in which we can think, barring the reasoning done in words of "universal signification." We reason—in the special sense that sets us apart from the animals—"*not but*" in words of universal

signification. But note that his point here is that *this faculty too* depends on the imagination and experience—the very faculties the animals have—and so the capacity to *conclude* "one thing from another" and to *infer* is not a faculty germane to the human species only. Or so I shall argue in more detail in the next chapter.

Chapter 4:
The Cognitive Powers of the Natural Mind: Deliberation and Reasoning

1. Introduction

Thus far I have examined the fundamentals of Hobbes's philosophy of mind. I have argued that the phantasms and ideas of sense experience are cognitive states that have their content in virtue of their causal-functional role in a sentient organism's mental and behavioral output. I also argued that the phenomenal qualities of experience are identical with acts of perceiving—of cognizing—extra-mental objects of sense (for the sensible qualities just are our "notice" and our "knowledge" of physical bodies). The intentional content of an idea or phantasm of sense is determined by the existence of an appropriate causal chain between the particular external body perceived and the perceiver. The sensible qualities are the conscious awareness of that body, as it is perceived; they are identical with the state of an organism's brain and body when it perceives (or *in perceiving*) a sensible object. In the previous chapter I extended this analysis to Hobbes's account of imagination, memory, and the passions. By the Copy Principle, the idea in the imagination of an object *just is* the sensory representation of that object, retained in the brain of the sensing organism. Hence, in a way, all ideas *are* a kind of memory, for they are the record of the real causal action of external bodies upon the sensory and cognitive apparatus of a sentient organism. But Hobbes does not *conflate* memory and imagination, distinguishing the two on functional grounds: an idea is a memory, rather than an act of imagination, when it plays the causal-functional role of a memory (as that role is roughly characterized in our folk-psychology). I concluded that chapter with a brief look at the way in which Hobbes applies his causal-functional analyses to the passions and

deliberation. Passions are (partly) cognitive states on Hobbes's theory. Conceptions and ideas play a causal-functional role in the determination of the passions. In each of these cases the faculties of imagination and the senses are essential.

In the previous chapters I have been laying the groundwork for the argument that I shall make in this chapter and continue in the next. That is that the faculty of imagination is the primary cognitive faculty and Hobbes attempts to explain all other cognitive acts of the mind in terms of it by *reducing* them to functional states in which acts of conceiving or considering ideas in the imagination play a central causal role. This includes the faculties of reason and the understanding. Contrary to the Davidsonian thrust of the "made with words" thesis, I maintain that according to Hobbes animals and pre-linguistic humans *are* capable of active, classificatory thought. In this chapter I begin my criticism of the "made with words" thesis. I argue that the faculties of reason and the understanding are inferential powers of the imagination. Like Don Garrett's Hume, Hobbes recognizes a kind of inferential power: an ability of the imagination to perform inferential operations over its conceptions.[141] I argue further that this inferential power involves the conscious apprehension of similarities between objects of perception and conceptions in the imagination. Hobbes does not sharply distinguish between different forms of consciousness. As we saw in chapters 1 and 2, Hobbes is not a functionalist and holds an identity theory of phenomenally consciousness. Phenomenal states are just identical with acts of perception, which are physically realized as motions in the brain. I claim that we should understand him as claiming that an organism is access-conscious of similarities between objects: similarities between objects and their connections, stored

[141] See Garrett *Cognition and Content*, 76-95.

and represented in the memory, are available for deployment in the guidance and control of an organism's expectations, behavior, and the generation of further mental states.[142] Hobbes's conceptual tools are not sufficiently fine to cut the sorts of neat distinctions that we have in contemporary philosophy of mind. However, we can see that Hobbes holds that conceptions in the memory are access-conscious, in that they are representational states, derived from perception, that can perform certain functional roles in an organism's cognitive system—what they "do" in the system is facilitate reason's inferential work in resolving opinion, or generating expectations and judgments that can be executed in voluntary behavior.

An underlying theme of "language forward" interpretations of Hobbes's philosophy of mind is that Hobbes sees a large gap between the natural animal mind and the pre-linguistic human mind, on the one hand, and the worded, post-linguistic human mind on the other. The assumption that there is an important *discontinuity* between the mature, worded human mind and the non-linguistic, natural mind is explicit in Pettit's argument. Pettit's main argument, which as I understand him, provides the supporting superstructure for his interpretation, is what he identifies as Hobbes's "master argument" for the thesis. That argument runs as follows:

[142] Following Ned Block's definition of access consciousness ("A-consciousness"): a mental representation is "A-conscious" if it is "poised for control of speech, reasoning and action" in a functional sense, so that "what makes a state A-conscious is what a representation of its content does in a system" ("Concepts of Consciousness" in Ned Block, *Collected Papers*, vol. 1 (Cambridge, MA and London: Bradford, MIT Press, 2007), 279 and 280). Cf. Block "How Many Concepts of Consciousness?" in Block *Collected Papers,* vol.1 (Cambridge, MA and London: Braford, MIT Press, 2007), 215-247.

(1) "Those who are able to speak, and only those who are able to speak, have a capacity for active, classificatory thought—in short, for 'thinking'; *this is a plausible assumption that Hobbes does not explicitly defend*."

(2) "Thinking" in this sense, is not "sourced in the natural mind" because humans and animals share those faculties.

(3) Therefore, the "correlation between speech and thinking can only be explained…by the fact that speech itself is at the origin of people's capacity to think."

(4) The "only plausible, naturalistic explanation" is that speech "is the product of an invention by natural minds." [143]

Premise (1) of this argument is my main target. As Pettit notes, Hobbes does not explicitly argue for (1). That is true. There is no direct textual evidence supporting the claim that Hobbes believed it. But (1) is *not* a plausible claim and in fact runs contrary to the naturalistic spirit of his philosophy and much of what Hobbes actually does say speaks against it. Pettit's acceptance of this "plausible assumption," would appear to put (4)—which Hobbes does believe—under pressure, since it is very difficult to understand how linguistic practices got off the ground without the existence of a natural ability to *notice* similarities and to group objects together on the basis of these similarities, in order to give them "universal names" at all.[144] Pettit recognizes that, on his interpretation,

[143] Pettit *Made with Words*, 15; my emphasis.
[144] For an *a priori* argument that Locke's account of mind and language makes classification impossible for exactly this reason, see Johnathan Bennett *Locke, Berkeley, Hume: Central Themes*, (Oxford: Clarendon Press, 1971), 11-20.

Hobbes's account is threatened by a vicious circularity and must come to grips with this (but at a cost as we shall see below).

Pettit recommends his interpretation on the grounds "true to the spirit of Hobbesian psychology insofar as it leaves in place the great divide that [Hobbes] alleges between nonhuman and human mentality"[145] and argues that "not having access to general categories in which to cast [particular, occurrent stimuli], nonhuman animals will still be captives of the temporal and spatial present."[146] As I understand it this reflects (1) of the "master argument." Pettit goes on to claim that "Hobbes never address the question as to whether animals might be able to reason, if they had access to language," but he speculates that Hobbes's computational theory of reasoning "would enable him to deny that language alone could induce other animals to reason; for all that he says, they may lack the required computational ability" perhaps an "innate faculty or capacity of the kind postulated in the computational model," maybe captured in a Fodorian "language of thought," present in humans but not the nonhuman animals.[147] But why does Pettit think that Hobbes would want to *deny* that "language alone could induce" the animals to reason? What we see here is Pettit explicitly maintaining that Hobbes might hold that the nonhuman animals *lack* a cognitive capacity, available *only* to humans—we have a power that they, in principle, do not have—in order to preserve the assumption that Hobbes perceived a sharp *gap* between our cognitive powers and those of our nonhuman animal friends. Since he interprets Hobbes as maintaining that the human mind is "made with words" and that there is "a great divide" between human cognition and animal cognition,

[145] Pettit, *Made with Word*, 36.
[146] Pettit, *Made with Words*, 36.
[147] Pettit, *Made with Words*, 45-46.

Pettit reasons that Hobbes might posit an underlying "computational capacity"—a special cognitive power—grounding the human capacity for reason (i.e. use language), but which is lacking in nonhuman animals. Premise (1) of the "master argument," for which he admits there is no explicit textual evidence, leads him to speculate that Hobbes might endorse a "computational faculty." It is "plausible" that animals do not think; but people do think. Hence, there must be after all be a deep natural cognitive difference between us and them.

Other "language forward" interpretations concur with him insofar as they posit this sharp gap between the human mental capacities and the nonhuman animal and pre-linguistic human capacities. On these views, the introduction and invention of language is supposed to be the source of conceptual and classificatory thought, and the medium in which human thinking takes place.[148] Thus, it is alleged, Hobbes holds that thought *itself* is essentially and inextricably bound up with language and names. Proponents (Pettit included) argue that Hobbes is committed to the view that without language, there is no conceptual or classificatory thought and they intend this thesis in a very strong way. Gordon Hull, for example, claims that "Hobbes concludes that *thought itself* is inseparable from naming" and that "as [his] reduction of intellect to imagination implies, *thinking is linguistic from top to bottom*; language is not something added later to express thought." [149] Hull does not go so far as to assert this in so many words, but he very strongly implies that on his version of the "made with words" thesis, Hobbes holds that in

[148] Soles, *Strong Wits*, 29-31, and 101. Soles claims that Hobbes holds that "language is the medium of much thinking, (*Strong Wits*, 29) and a "moderate linguistic relativism" (*Strong Wits*, 101). Soles does not specifically address the question of the nonhuman or non-linguistic natural minds and appears to stop well short of the "made with words" thesis (but is likely the inspiration for Pettit *Made with Words*).
[149] Gordon Hull, "Meaning", 101; my emphases. See also Hull "Hobbes's Radical Nominalism," 201-23 and *Hobbes and the Making of Modern Political Thought*, 70-86.

the absence of language there is just *no thought at all* and that, hence, nonhuman animals and pre-linguistic humans (like children and the developmentally handicapped) just cannot *really* think.[150]

This is a wildly implausible and chauvinistic view and, much to his credit, Hobbes does not buy it. The source of confusion is evident in Hull's claim that Hobbes's reduction of the intellect to the imagination entails that all thought is "linguistic from top to bottom." But Hull is not correctly grasping the point of the reduction. In reducing the faculty of the intellect and reason to the imagination and memory Hobbes is trying to show that all thinking a matter of *imagination* (and hence materialistic) from top to bottom. His purpose in identifying the intellect with the imagination is to *deflate* the pretentions of reason, not to *inflate* the pretentions of language. Between man and animal there is a basic continuity: our minds are, in their essential cognitive functions, *just like theirs*. To be clear, I am not denying that Hobbes sees that humans enjoy a special kind of "superiority" over the nonhuman animals. That, I take it, is an inescapable empirical fact: we have (or once had) a space program and not even the dolphins, clever as they are, can say that. I am also not denying that Hobbes chalks this great difference up to the human capacity for reason—the human use of words in propositions and syllogisms and in the generation of general rules, promises, contracts, covenants, and so on. That, I think, Hobbes is also clear about. What I claim, however, is that the difference between human mental power and the nonhuman animals' that is introduced by language, does not amount to "a deep cleavage between us and otherwise comparable animals"[151] in respect

[150] Hull "Meaning," 101-02.
[151] Pettit, *Made with Words*, 2.

of our cognitive faculties; certainly not, if that means Hobbes should posit a "computational faculty" or deny that nonhuman animals and pre-linguistic humans can *think*. Hobbes does not share the implicit assumption held by proponents of "language forward" interpretations that human beings can think (or *really* think) and animals cannot. That is an assumption (and a bad one) *imported* by Hobbes's commentators. Hobbes holds, rather, that the cognitive powers of humans and animals are essentially the same: the operations and processes of the imagination and memory, what actually happens "in our heads," are the same in all creatures with sense, memory, and imagination. All cognition, according to Hobbes—all of it—is a matter of conceiving and remembering. It all grounds out in the raising and compounding and considering of the ideas in the imagination and memory, retained there by the Copy Principle. All other mental acts are defined in causal-functional terms as operations of the imagination and memory. These operations of the imagination are available to nonhuman animals and but for the use of names as marks and signs of thought, they would be in principle every bit as capable of reason and science as we are. The case is somewhat complicated and so shall occupy this chapter and the next.

The "made with words" thesis, as I pointed out above, rests on the assumption expressed in premise (1) of Pettit's "master argument." This is the assumption that there is a "great divide" between "human mentality" and that of the "lower" animals—we can think, properly speaking, but they cannot—which can only be explained by appeal to the linguistic conditioning of the human mind. Animals cannot properly speaking *think* because they cannot *talk.* I believe that this presupposition that animals cannot think in the full-blooded sense is at the root of the appeal of the "made with words" thesis. But

just what is the special, robust sense in which human beings can think? Pettit identifies two different features of human "mentality" that the natural, non-linguistic animal mind (allegedly) lacks: first, whereas human thought is "prompted or guided by the agent's desires in the manner of an active, intentional performance," the natural, non-linguistic thought-processes are passive, "a form of vital motion" that just "happens" and is not a voluntary activity; second, whereas human thought is classificatory, general, and not bound to the spatial and temporal present, the natural mind is a prisoner "of the imagined particular" and so is unable to engage in classificatory thought, nor to think beyond the immediate present.[152] In this chapter and the next I criticize both of these claims.

In section 2 and 3 I argue that Hobbes recognizes a form of non-linguistic, natural reasoning. I argue that Hobbes identifies a form of reasoning and computation that is not dependent on the ability to use a language. This natural ability to reason and compute is an inferential power of the imagination and memory. The inferential power of the imagination is a characterized by the functional role that guided trains of thought play in an organism's cognitive system. Just as deliberation is characterized functionally as a guided train of thought that executes practical judgments in acts of will, so certain guided trains of thought are characterized as reasoning and "reckoning" by their functional role. Reasoning is a guided train of thought that begins in the desire for knowledge and resolves doubt in the form of a judgement of fact or an expectation. It is a causal process, but Hobbes views it as *genuine* reasoning in virtue of such trains of thought play in the

[152] Pettit, *Made with Words*, 24. I do not mean to give the impression that I am singling Pettit out here. Other "made with words" views recognize both of these features, but in a confused, inexplicit way; I focus on Pettit, *Made with Words*, because he very clearly identifies these as distinct human mental powers.

overall psychological economy of an organism. Hence, there is a kind of reasoning—an inferential power—shared by both humans and non-linguistic, nonhuman animals.

In section 4 I discuss Pettit's claim that the non-worded natural mind is "passive," in a sense that makes its operations something less than genuine thinking. I begin this section with a brief look back at the "discourse of the mind" and deliberation. I point out that Hobbes does actually allow that the natural, non-worded discourse of the mind does amount to a kind of reason and computation in a perfectly intelligible sense. I then turn my focus to the "made with words" claim that Hobbes thinks of the natural discourse of the mind as a passive event, that simply "happens" to an organism, as digestion or respiration "just happen." Drawing on the causal-functional account of deliberation and the will from chapter 3, I argue that Hobbes denies that thinking is, strictly, voluntary, since voluntary actions are defined as bodily actions that are causal output of a process of deliberation. He is also clear that the will always follows the conceptions and that the conceptions are involuntary. I argue that if "passive" thinking is not real thinking because it is inactive in the sense opposed to "voluntary," then no creatures can think in the intended sense of "thinking." But, on the other hand, I point out that there is a perfectly intelligible sense of "active" in which the natural "discourse of the mind" and deliberation is not "passive," though "involuntary." Deliberation is a causal-functional state of an organism, involving goal-directed thought, guided by an organism's desires and passions, issuing in acts of will. Thus there is a way in which Pettit is correct to say that the natural mind is "passive," but in this sense "thinking" is not ruled out. That is the causal-functional sense of "thinking." One might object to this view, but it *is Hobbes's* view.

2. Mental Discourse, Non-Linguistic Reasoning

In section 4 I critique Pettit's claim that the cognitive operations of the natural, non-worded mind are too "passive" to count as real thinking. But before entering into that discussion, I would like to point out the ways in which Hobbes—as he expresses himself in his own words—does and does not count what the natural, non-worded mind does as reasoning and computation. What we shall find, I argue, is that Hobbes believes there is a natural, inferential faculty. Ideas in the imagination and memory are access-conscious states that feature in trains of thought or discourses of the mind. These discourses of the mind play the same causal functional role in an organism's cognitive system as (as we have seen in the last chapter) deliberation and (as I argue) reasoning, characterized in folk-psychology. If one holds a causal-functional theory of cognitive states, then these "discourses of the mind" count as "thinking" in a perfectly legitimate sense.

A few things about Hobbes's views are generally agreed upon. The first is that the cognitive operation he calls variously "mental discourse," "discursion," and the "train of thought," is basically Hobbes's account of natural, non-linguistic cognition. Discursion is a cognitive operation, or series of operations, in the sense that mental discourse is a succession of states consisting in a series of transformations, transitions, and recollections of mental representations: the conceptions and images, representing extra-mental bodies and their accidents, copied into the imagination, cohering by association (see e.g., *Lev.* i, 22: 1-16 and *Lev*. iii, 38: 5-21). The second is that there is a sense of reason—and Hobbes is clear about this—according to which that natural discourse of the mind *does not* count as reasoning. Reasoning, understood as the calculation of universal names in

propositions, is a special ability of the human mind that we have developed in virtue of our ability to use and understand languages.

However, there is a sense in which Hobbes does hold—and I believe he is equally clear about this—that the natural, non-linguistic mind is capable of reasoning. I argue that Hobbes holds that there is a form of discursion of the mind that also counts as "calculation" and in this sense, it counts as a non-linguistic form of reasoning. Turning first to the discussion of the discourse of the mind and signs in *Anti-White* (to which I return in section 4, below), notice that there Hobbes describes the discourse of the mind as a "collection of mind-pictures" (*Anti-White* xxx.9, fol.341v). In the subsequent discussion of the distinction between a regulated and an unregulated discourse, Hobbes draws the further sub-distinction (familiar from *Lev*. iii, 40: 26-29 and 44: 1-4) between, on the one hand, a discourse of the mind that leads from the conception of an agent's goal, to the means by which it has been observed to have been brought about (from effects to causes) and, on the other, a discourse of the mind leading from some means to their possible ends (causes to effects):

> The principle of discourse is derived from the end to which tends the agent discoursing, when the mind-picture of the goal is succeeded by the mind-picture of the path to the goal—the path by which (take the starting-point where you will) the series of mind-pictures is continued through a chain of causes and effects, and this is either from cause to effect or from effect to cause (*Anti-White* xxx.10, fol.341v).

He draws this distinction in all of his discussions of the discourse of mind (e.g. *Lev*. iii, 40: 26-29 and 42:1-15), but in *Anti-White* he adds a comment following this sentence that does not have an immediately obvious correlate in his later works:

> If the progression indeed proceeds from the mind-picture of a cause to the mind-picture of an effect, and so thus to the goal (which is always the final effect), the mind's discourse is called a collecting-together, a 'synthesis'. If, on the other hand, it proceeds from effect to cause and hence to preliminaries, it is called an unloosing or 'analysis'. Either of these is termed 'recollection' (*Anti-White* xxx.10, fol. 341v).

This language of "unloosing" and "collecting" of ideas is novel. So too is the suggestion that "recollection" is a kind of "collecting" of thoughts in the imagination (and it reminds one of Hobbes's etymologies, much like his point that "deliberation" is a process of "de-liberating" the will). What Hobbes is claiming in this passage is that the discourse of the mind is a kind of "collecting" and "unloosing" (a "synthesis" or "analysis") of ideas, pulled from the memory. Hobbes gives us an example in *Anti-White* to show us what he means:

> An example of 'collecting-together' in humans is when they visualise building [something] according to an order [of events (*ordo*)] from the material to the form of the house they propose bringing into being; for the mind-picture moves from the material to is transportation and from there to the foundations, thence to the walls and from there to the roof. An example of similar discourse in brute [creatures] is birds' nest-building. An instance of 'unloosing' among men is when the thought advances from the form of a house to that of a site where it is to be

> built; then of the material that has been brought together in that place; then of the actual transportation [of the material]; and then of the place it is got from. In beasts we have an example of the same 'discourse' in the same birds when, reasoning back from their young to [the production of] eggs, a nest, and [its] material, they return to a destination [previously] designated (*Anti-White* xxx.10, fol. 342).

Notice that "collecting" and "unloosing" conceptions in the discourse of the mind is something that *both* humans and non-linguistic nonhuman animals do and he asserts this in the very next sentence: "As existing in man, these faculties differ from the same ones in beasts only in degree and the speed of thinking" (*Anti-White* xxx.10, fol.342). Note too that Hobbes calls this "recollection" of ideas in an orderly discourse of mind—a goal-oriented discourse of mind—"reasoning" and that *birds* reason (in this way) when the find their way to a nesting-site. Hobbes even claims that "[w]hen it reasons from cause to effect, the imagination might be called an 'art'" (*Anti-White* xxx.10, fol.342). The discourse from the conception of building materials to an imagination of a house that might be built from them is a "collecting-together" of conceptions. In the other discussions of the discourse of the mind, the focus is generally on a series of *events* from causes to effects and back again. It is easy to lose sight of the fact that Hobbes also regards the composition or manner of construction of an object as a kind of cause (as in, e.g., the cause of a circle is a method of construction) and that conceptions have causes in this sense too. But, as we have seen, Hobbes holds that all ideas in the imagination are derived from the senses, "totally, or by parcells" (*Lev.* ii, 30: 13; also *Lev* i, 22: 11) and that he draws a distinction between the "*simple Imagination*" and the "*Compounded*," the

latter being compounded out of the "parcells" derived from the former (*Lev*. ii, 28: 25-31). Thus, although the language of "collecting" and "unloosing" is not present in other works, nonetheless the basic claim is there: ideas can be pulled apart into their "parcells" and recompounded together. I note too that the language of "analysis" and "synthesis" usually arises in Hobbes's work in connection with scientific methodology not explicitly in a discussion of the discourse of the mind—*De Corpore* chapter vi is an obvious case. And although *De Corpore* chapter vi Hobbes is not focusing on the discourse of the mind *per se* as part of his philosophy of mind, even there the "analysis" and "synthesis" under discussion is an analysis and synthesis of conceptions. Moreover, though it is easy to miss, Hobbes invokes this notion in his brief argument for the associative cohesion of the ideas of the train of thoughts in *Leviathan*: "Not every Thought to every Thought succeeds indifferently. But as wee have no Imagination, whereof we have not formerly had Sense*, in whole, or in parts*; so we have no Transition from one Imagination to another, whereof we never had the like before in our Senses" (iii, 38: 7-10; my emphasis). So, I suggest, we should understand the train of thoughts as discoursing not only from one conception of one event to another, but also as discoursing in the manner of "collecting" and "unloosing": "parcells" being unloosed and collected up with other "parcells."

The foregoing may seem like a lot of trouble to establish a small point, but I believe this small point has important ramifications. Hobbes called this mental collecting and unloosing—shared by humans and "brute beasts"—a kind of "reasoning." I shall now argue that that is not a funny fluke of *Anti-White* and cannot be dismissed as an early position that he later comes to reject. The process of collecting and unloosing "parcells"

of conceptions in a regulated train of thought is just what Hobbes refers to as "computing" or "ratiocination" of phantasms in *De Corpore*. There (and I quoted one of the relevant passages at some length in chapter 1) Hobbes provides an example of "how by the *ratiocination* of our mind, we add and subtract in our silent thoughts, without the use of words [*sine verbis tacita cogitatione ratiocinando addere et substrahere*]" (*De Corpore* i.3; cf. *De Corpore* vi.2). The example is of the compounding of the parcel-conceptions of *body*, *animate*, and *rational* to form the conception of a *man*. In that same passage, he gives a geometrical example: "of the several conceptions of *four sides*, *equality of sides*, *and right angles*, is compounded [*componitur*] the conception of a *square*" (*De Corpore* i.3; cf. *Lev*. iv, 52:25-32 and 54:1-11, also *De Corpore* vi.11).

But this "computation" and compounding of ideas counts as "ratiocination" *without words*. And this is exactly the sense in which Hobbes allows that the natural, non-linguistic mind is capable of reasoning. Confirming evidence can be found in chapter v of *Leviathan*, in which Hobbes defines reason. Leading into this definition, Hobbes makes the following general comments about reasoning:

> When a man *Reasoneth*, hee does nothing else but conceive a summe totall, from *Addition* of parcels; or conceive a Remainder, from *Substraction* of one summe from another: which (if it be done by Words,) is conceiving of the consequence from the names of all the parts, to the name of the whole; or from the names of the whole and one part, to the name of the other part. … These operations are not incident to Numbers onely, but to all manner of things that can be added together, and taken out of another… In summe, in any matter soever there is place for

> *addition* and *substraction,* there also is place for *Reason*; and where these have no place, there *Reason* has nothing at all to do (*Lev*. v, 64: 1-7, 11-13, 22-24).

Notice that Hobbes is defining a *general* notion of "reasoning" and that it is a matter of *conceiving*—an operation of the *imagination*. It is a kind of computational ability. Reasoning is conceiving—imagining—a "summe totall" compounded out of some "parcels." Hobbes leaves it open as to what sorts of "parcels" one is adding together: any subject whatsoever is amenable to reasoning, so long as one is able to add and subtract "parcels." Conversely, if there is no question of being able to conceive "summes" of "parcels," then there is no place for reasoning. In the opening of the paragraph, Hobbes is making a general claim about what reasoning is. Reasoning is an ability to conceive parcels added and subtracted from one another; anything that can be conceived of in parcels in this way would seem to be a proper subject for reasoning. The paragraph continues by *narrowing* the sense of "reasoning" under discussion; hence, the parenthetical comment. Reasoning, generally speaking, is conceiving of parcels compounded and subtracted in the imagination (for that is the faculty by which we conceive); however, *if it* (the conceiving of parcels compounded and subtracted) *is done in words*, then it is a conceiving of the consequences of names. That is, reasoning, when performed with the help of names, is just a specific instance of a more general *imaginative* capacity for conceiving of the "summes" of "parcells." Thus, when Hobbes continues in this passage to define "reasoning" he restricts the scope of the definition to reasoning *when it is done in words*:

> Out of all which we may define, (that is to say determine,) what that is, which is meant by this word *Reason*, when wee reckon it amongst the Faculties of the

> mind. For REASON, in this sense, is nothing but *Reckoning* (that is, Adding and Subtracting) of the Consequences of generall names agreed upon, for the *marking* and *signifying* of our thoughts; I say *marking* them, when we reckon by our selves; and *signifying*, when we demonstrate, or approve our reckonings to other men (*Lev*. v, 64: 25-31).

This definition is restricted to the sense of "reason" that is intended when people speak of it as a faculty of the mind—the "faculty of reason" or "the intellect" or "the understanding." Hobbes does not intend to rule out a non-linguistic, natural ability to reason. Quite the contrary. Reason *is* a natural, non-linguistic ability, an ability to conceive the "summes" of "parcels"—to compute and compound *ideas* and *conceptions*. Hobbes does not recognize the existence of a "faculty of reason," understood as a cognitive faculty distinct from the imagination and memory. The imagination is the only cognitive faculty Hobbes allows in his philosophy of mind and he reduces the other cognitive powers to operations of the imagination. Against Bramhall, recall, Hobbes produced a litany of mental powers involving cognitive states that he claimed (on empirical and introspective grounds) could be reduced to the operations of the imagination: "If the Bishop had observed what he does himself, when he deliberates, reasons, understands, or imagines, [he would have known] that consideration, understanding, reason, and all the passions of the mind, are imaginations[;that] to consider a thing, is to imagine it; that to understand a thing, is to imagine it; [etc.]" (*QCLNC*, "Animadversions" xxvi, *EW* v: 358-59). His reduction of the cognitive powers, and especially the powers of reason, deliberation, and understanding, is part of an intentionally deflationary account: the imagination, a mundane corporeal power of

natural, living creatures, suffices to perform the work of these other, higher powers. Recall too in the dialectic with Bramhall, Hobbes's point was anti-chauvinistic—Bramhall had objected to Hobbes's compatibilism on the ground that deliberation is a power of a peculiarly *human* rational cognitive faculty. Hobbes's reductionist retort is to point out that there is nothing particularly special about the human powers of reason and understanding, since they are operations of the *imagination*. The assumption to the contrary is unwarranted. And so here we find Hobbes—now in control of the narrative—defining reason in terms of the imagination. In the general sense of "reason," reason is an operation of the imagination. In the special sense, "when we reckon it amongst the faculties of the (human) mind," it is imagining the consequences of names in propositions. In other words, Hobbes concedes to the Scholastic faculty-psychologist that we do sometimes speak of a "faculty of reason" and we do intend it in this sense as a faculty in virtue of which human mental power is separated from animal mental power. However, that "faculty" is not *really* a cognitive faculty distinct from the imagination (which we share in common with every creature that can sense and remember); it's just an ability to conceive of the consequences of the "summes" of general names. But this ability presupposes the more basic, general ability to reason: to calculate and reckon, to compound and "unloose" ideas in the imagination.

More evidence that Hobbes considers this non-linguistic operation of the imagination a kind of reasoning occurs just a few paragraphs later in *Leviathan* chapter v (which I note is titled "Of REASON, and SCIENCE"). Distinguishing mere error from absurdity, Hobbes writes:

> When a man reckons without the use of words, which may be done in particular things, (as when upon the sight of any one thing, wee conjecture what was likely to have preceded, or is likely to follow upon it;) if that which he thought likely to follow, followes not; or that which he thought likely to have preceded it, hath not preceded it, this is called ERROR [OL: *id in Ratiocinate appellatur* Error; "it is called in error in the reasoner" [153]]; to which even the most prudent men are subject (*Lev*. v, 68: 1-6).

Hobbes is discussing what he calls "prudence"—a natural capacity to make conjectures on the basis of signs learned by experience and the memory. This natural ability, which I discuss in more detail in chapter 5, depends on the operations of the imagination and Hobbes is very clear that *both* humans and non-linguistic, nonhuman animals are perfectly capable of making sign-conjectures. Prudence does not depend on the ability to use and understand language. According to the "made with words" thesis, Hobbes does not count this ability as "thinking" properly so-called; yet, here it is, described by Hobbes as *reckoning*. According to the general sense of "reasoning" he outlines right before his definition of "reason" in the narrow sense, this "reckoning without words" should count as reasoning, for it would be a "collecting" and "unloosing" of conceptions, mental "parcels."

It is certainly true that Hobbes distinguishes reason from prudence, but what he intends is not a distinction between thinking-proper and some other cognitive operation, less than real thought, that animals can do too; rather, he intends to make a distinction

[153] Trans. by Noel Malcolm (*Lev*. v, 69 note 13).

between reason, in the sense we mean when we "reckon it amongst the faculties of the mind" and prudence. Reasoning, in the general sense, as we saw above, is a reckoning of mental "parcels" and can be done without words. Reasoning in this general sense is an operation of the imagination and, in this sense, prudence—sign-conjecture—counts as reasoning. Reasoning in the more narrow sense, the sense which distinguishes humans from animals, in virtue of which we say humans are "rational animals," is reckoning with names in propositions. With this in mind, consider the following text, from *Leviathan* chapter v, often viewed by "language forward" interpretations as support for their positon.[154] Having defined reasoning in the manner quoted above and having explained the causes of absurdities and falsehoods (especially amongst philosophers), Hobbes writes:

> By this [i.e. the fact that absurdity arises from misuse of names and trust in dubious authorities, but these are avoidable by "good principles" and instruction] it appears that Reason is not as Sense, and Memory, borne with us; nor gotten by Experience onely, as Prudence is; but is attayned by Industry; first in the apt imposition of Names; and secondly by getting a good and orderly Method in proceeding from the Elements…that is it, men call SCIENCE. And whereas Sense and Memory are but knowledge of Fact, which is a thing past, and irrevocable; *Science* is the knowledge of Consequences, and dependence of one fact upon another (*Lev*. v, 72: 5-18).

[154] E.g., Pettit, *Made with Words*, 45; see also Hull, "Meaning," 101. Hull cites this passage in connection with the *Leviathan* definition of "understanding" as conceptions caused by speech (*Lev*. iv, 62: 1-8), not recognizing that Hobbes is using "understanding" here in the narrow sense that relates to the narrow sense of "reason."

The point of this passage (and its correlate at *HN* vi.4) is not to distinguish reasoning—and so thinking proper—from its lightweight cousin, prudence. Hobbes's point is not that prudence does not involve reasoning or that science does not involve the imagination. He distinguishes prudence from reason on the basis of their source and epistemic warrant. I do not see that he intends to revoke the claim he made earlier in the passage that prudence is reason in the general sense of adding "summes" of "parcels." Prudence is a natural capacity to conjecture and make inferences on experience and is fallible. Reason, in the sense it is opposed to prudence, is an acquired inferential ability and is infallible. At the beginning of this chapter in *Leviathan* Hobbes defines reasoning in the "faculty of the mind" sense as an ability to use names in propositions; but as we saw, he develops this definition from a broader, non-linguistic notion of reasoning. Certainly what Hobbes intends here is to "break the spell of the traditional idea that reason is an innate faculty."[155] But what he is claiming is a developed ability, a skill learned as the result of diligence and training, is not reasoning in the broad sense, but reasoning in the narrow sense. The marginal header of the above-quoted paragraph is "*Science*." Thus, Hobbes intends to focus on reasoning as a faculty of the mind—a capacity for understanding universal, necessary propositions, and for achieving demonstrative certainty. That is a matter of getting apt definitions for terms, connecting them into propositions, and drawing conclusions from them in an orderly, systematic way. He is denying the Scholastic view that the faculty of intellect—the capacity to understand universals and necessary truths—is innate. That power is an ability to use names and to use them in a methodical, orderly way. The topic of *Leviathan* chapter v is, as I mentioned, reasoning

[155] Pettit, *Made with Words*, 44.

and in particular that special, methodical kind of reasoning that is called "science." What is "attayned" by industry is scientific knowledge and that depends on using names well.

Pettit is right to compare Hobbes's account of reason with playing the piano.[156] Although there is no innate ability to play the piano, it is a skill that depends on some "native ability," such as having the right sort of hands with the right kind of dexterity. So too with reasoning. It is a skill that one learns and develops with practice, but nevertheless depends on a prior, native capacity. But that native faculty is an ability to perform a certain kind of imaginative operation: computing and reckoning conceptions. This is, however, *reasoning*. It just is not reasoning *scientifically*. The example Hobbes chooses to illustrate the distinction between "*Prudence*" and "*Sapience*" (or wisdom, properly so-called) tells in favor of this interpretation:

> As, much Experience, is *Prudence*; so, is much Science, *Sapience*. … But to make their difference appeare more cleerly, let us suppose one man endued with an excellent naturall use, and dexterity in handling his armes; and another to have added to that dexterity, an acquired Science of where he can offend, or be offended by his adversarie, in every possible posture, or guard: the ability of the former, would be to the ability of the later, as Prudence to Sapience; both usefull; but the later infallible (*Lev*. v, 76: 1, 4-10).

Notice that this analogy only makes sense if Hobbes is expecting us to be *presupposing* that science—the acquired facility in the use of language in reasoning—and prudence are underwritten by the *same faculty*. Consider Hobbes's example. According to the case,

[156] Pettit, *Made with Words*, 45.

both the natural swordsman and the fencing master have the same underlying power: an excellent "naturall use" and dexterity in the handling of swords. The fencing master's superiority over the natural swordsman is not tantamount to her gaining a *different faculty*, but augmenting an old one. It is not as if only the fencing master engages in swordsmanship while the natural swordsman does another thing entirely: they are both swordsmen, engaged in swordplay, but the fencing master is better at it. So, applying the analogy, the merely naturally prudent creature (whether human or not) and the scientific human are engaging in the same activity and with the same mental faculties. But the scientific person has acquired a set of skills by which she can augment her natural faculties.

Finally, in chapter vii of *Leviathan*—"*Of the* Ends, *or* Resolutions *of* DISCOURSE"— Hobbes weaves all of these strands together and provides a characterization of a kind of discourse of the mind, guided by the desire for knowledge, which he distinguishes from deliberation functionally:

> Of all *Discourse*, governed by the desire of Knowledge, there is at least an *End*, either by attaining, or by giving over. And in the chain of Discourse, wheresoever it be interrupted, there is an End for that time.
>
> If the Discourse be meerly Mentall, it consisteth of thoughts that the thing will be, and will not be; or that it has been, and has not been, alternately. So that wheresoever you break off the chayn of a mans Discourse, you leave him in a Praesumption of *it will be*, or, *it will not be*; or *it has been*, or, *has not been;* All which is *Opinion*. And that which is Appetite, in Deliberating concerning Good and Evil; the same is alternate Opinion, in the Enquiry of the truth of *Past*, and

> *Future*. And as the last Appetite in Deliberation, is called the *Will*; so the last Opinion in search of the truth of Past, and Future, is called the JUDGEMENT, or *Resolute* and *Final Sentence* of him that *discourseth*. And as the whole chain of Appetites alternate, in the question of Good, or Bad, is called *Deliberation*; so the whole chain of Opinions alternate, in the question of True, or False, is called DOUBT (*Lev*. vii, 98: 1-17).

In this passage Hobbes characterizes a kind of discourse of the mind—governed by the desire for knowledge—that he does not name, but which he contrasts with deliberation. What he describes is the process of belief-fixation and of resolving doubt, rather than deliberation. Both are forms of discursion: they are successions of cognitive states, caused by a conception of an object of desire, that output or "resolve" by discharging the passion. But the when the succession concerns the good and, presumably, courses of action to be undertaken it is "alternate appetite and aversion" and terminates in an act of willing. That is, the role of the successions in practical deliberation is to discharge practical judgements in voluntary behavior. This is the functional characterization of deliberation. But the succession of conceptions where they concern only "what will be" or "what was"—matters of "opinion," belief and expectation—is not deliberation but "doubt" and the output of this train of thought is not an action, but the fixation of a belief or opinion, or a "judgment" of fact. This passage illustrates that, when in the right causal-functional chain in an overall organic system, the discourse of the mind is not simply a "happening" in the body. It is a form of *reasoning*, settling doubt and determining the organism to the opinion of fact. This train of thought is characterized as a train of thought that begins with the desire for knowledge and resolves doubt in the judgment of fact. This

train of thought—call it the "resolution of doubt"—is constituted functionally this role. The resolution of doubt, like deliberation, is a discourse of the mind that is not necessarily tied to language: it can be "meerly mentall."

To recap the foregoing discussion: I have argued that there is clear textual evidence that supports the claim that Hobbes recognizes a form of non-linguistic, natural reasoning. It is a kind of discourse of the mind regulated and governed by desire and is a "collecting" and "unloosing" of mental parcels—a natural, non-linguistic reckoning and calculating of simple and compounded conceptions. This ability grounds a natural inferential power, prudence, by which the mind conjectures from signs. As this reckoning with conceptions is a form of the regulated discourse of the mind, it is also a kind of imagination; hence, it is a form of reasoning that is available to both the human mind and the non-linguistic, never-to-be-linguistic, nonhuman animal mind. Reason, in the sense in which we claim that reason is faculty definitive of the human species, is nothing other than a facility with names and is an acquired ability. It is an ability to reason demonstratively and to form and understand universal, necessary truths. The cognitive faculty of the imagination grounds *both* prudence and scientific reason. He denies the Scholastic (and Cartesian) contention that the human ability to engage in scientific reasoning requires a special, intellectual cognitive faculty (one which "grasps" universal forms). However, Hobbes agrees with the Scholastics (and Cartesians) insofar as they say the animals cannot do this kind of reasoning. What I do not find in the text is support for the idea that Hobbes agrees with the Scholastics that *only* this kind of thinking gets to be dignified by the label 'thought.'

A potential objection to what I have been arguing so far is that in the contexts from which I have been drawing textual evidence, Hobbes is generally focused on *human* cognition. And so, even if he does mention a type of "reckoning" that does not involve words, might it not be the case that Hobbes restricts this kind of un-worded reasoning to minds that are already *conditioned* by words? If that is so, then is it not possible that thinking without words is only possible, according to Hobbes, for an animal that can already think *in* words?[157]

Although it is true that Hobbes is usually focused on human cognition and human mental life, the connection with nonhuman animal cognition is never too far away from the surface. Again, as I have been insisting throughout, Hobbes's general philosophical outlook is deflationary, reductive, and naturalistic. He very much *stresses* the continuity between humans and nonhuman animals. Be that as it may, this objection is easily met by pointing to one more example Hobbes gives of non-linguistic reasoning. In *Leviathan* and in *De Corpore* Hobbes considers the case of a person trying to reason about geometrical figures without the use of explicit theorems and geometrical terms. His purpose in discussing the case differs slightly between the two works, but the main point is the same: one can do geometry, albeit poorly, without words. In *Leviathan* he uses the case to illustrate how the by "imposition of Names, some of larger, some of stricter signification, we turn the reckoning of the consequences of things imagined in the mind, into a

[157] Isabel Hungerland and George Vick make an argument similar to this to defend their view that signification presupposes the intention to communicate verbally with other people and so Hobbes defines "speech" in terms of the intention to communicate to other members of the linguistic community, against the obvious objection that Hobbes recognizes the possibility that Adam had a private (idiolectical) language and could use names as private marks for the sake of thought, before Eve made the scene, and so could speak and utter words in propositions without a linguistic community. They posit a "language of solitude" that is not "speech" proper (see "Hobbes's theory of Language, Speech, and Reasoning" in *Thomas Hobbes: Computatio, sive, Logica*, ed. Hungerland and Vick, (New York: Abaris, 1989), 42-44).

reckoning of the consequences of Appellations" (*Lev*. iv, 52: 23-25). He asks us to consider the case of someone "that hath no use of Speech at all, (such, as is born and remains perfectly deafe and dumb)" (*Lev*. iv, 52: 24-25). Hobbes claims of such a person that:

> [I]f [this man] set before his eyes a triangle, and by it two right angles, (such as are the corners of a square figure,) he may by meditation compare and find, that the three angles of that triangle, are equall to those two right angles that stand by it. But if another triangle be shewn him different in shape from the former, he cannot know without a new labour, whether the three angles of that also be equall to the same (*Lev*. iv, 52: 25-32).[158]

As I understand him, Hobbes asks us to imagine a person who cannot use any form of speech and we are to assume this person does not or cannot use any sign language either (otherwise his example is vitiated). Hence, there is supposed to be no question here of this person's mind being conditioned in any way by a prior knowledge of language. According to Hobbes this person, just using the natural cognitive apparatus at his disposal, can compare a right triangle with the right angles of a square and can come to the conclusion—without words—that the interior angles of the triangle are equal to two of the right angles of the square. Now, although that is not *yet* tantamount to establishing or knowing any postulate of Euclidian geometry, it is nevertheless quite a complex feat. It

[158] In the Latin edition of 1668 Hobbes omits the last sentence. It may seem implausible that that anyone, even if congenitally deaf and unable to speak (and ignorant of sign language) would be *unable* to know that another triangle of a different shape, does not also have interior angles that sum to two right angles. However, I think it must be borne in mind that Hobbes is not claiming the man could not *conjecture* that what he discovered about the first triangle is also true about the second. Rather, Hobbes's point is that he cannot have *certainty*; that's why he cannot *know* without "a new labour" that the next triangle's interior angles *also* add up to two right angles.

is also not just a matter of observing one event, followed by another and I gather that Hobbes expects us to understand this as a case of "reckoning" without words in the sense described, for instance, in *Leviathan* chapter v. But by hypothesis this congenitally blind and speechless man (who also does not know any sign language!) cannot reason in the linguistically-conditioned way; so whatever he is able to do in this condition, a nonhuman, non-linguistic animal is also able to do in principle.

A similar case pops up in *De Corpore*. In my discussion of Hobbes's notion of calculation without names, I noted that in *De Corpore* Hobbes illustrates his meaning by giving the example of "ratiocinating" the conception of a man from the conception of the parts of the conception. When the man is at a distance, you conceive of *body* only; when he approaches, you conceive of *animate body*; and when he is within earshot, you can hear him conversing and you have the conception of a *rational, animate, body* or *a man* (*De Corpore* i.3). But Hobbes also gives there this geometrical example: "of the several conceptions of *four sides*, *equality of sides*, *and right angles*, is compounded [*componitur*] the conception of a *square*" (*De Corpore* i.3). Both of these examples, however, come on the heels of his definition of philosophy and in the very same paragraph in which he notes the etymological connection between the Greek λογίζεσθαι (*logizesthai*; to reason) and συλλογίζεσθαι (*syllogizesthai*; to syllogize). But the root of λογίζεσθαι and συλλογίζεσθαι is λόγος (*logos*). Hobbes himself notes this connection at *Leviathan* iv, where he makes the point that anything that can be "considered in an account; and added to one another to make a summe" can be subject to names and so are subject to reasoning (in the scientific sense) (58: 5-17). *Logos* has a range of interconnected meanings, connected in many ways well-suited to the position Hobbes

argues. The word *logos*, in a philosophical context, generally means "reason," "rational account," or "explanation," and sometimes "ratio," or "proportion," but it relates to speaking and can also mean "word," "language," "statement," "story," or "speech."[159] Since the context of these examples is one in which reasoning *in a language* is so prominent, one might wonder whether Hobbes really intends them as examples of what a non-linguistic mind can do.

But looking a little further ahead to *De Corpore* chapter vi, where scientific method is the topic of Hobbes's discussion, there is another case of geometrical reasoning without the use of names. In *De Corpore* vi.11, Hobbes is explaining what he calls the "method of invention." This method consists in the imposition of names so that "whatsoever we have found out may be recalled to the memory; for without this all our inventions perish, nor will it be possible for us to go on from principles beyond a syllogism or two, by reason of the weakness of memory" (*De Corpore* vi.11). Hobbes continues, giving the following illustration:

> For example, if any man, by considering a triangle set before him, should find that all its angles together taken are equal to two right angles, *and that by thinking of the same tacitly, without any use of words either understood or expressed*; and it should happen afterwards that another triangle, unlike the former, or the same in different situation, should be offered to his consideration, he would not know readily whether the same property were in this last or no, but would be forced, as often as a different triangle were brought before him (and the difference of

[159] Richard D. McKirahan, *Philosophy Before Socrates*, 128-29. See also W.K.C. Guthrie, *A History of Greek Philosophy*, vol.1, *Earlier Presocratics and Pythagoreans* (Cambridge: Cambridge University Press, 1962), 420-24

triangles is infinite) to begin his contemplation anew (*De Corpore* vi.11; my emphasis).

This is the same example he gave in *Leviathan* and the point is basically the same.[160] The person in the case is considering a triangle and discovers that the interior angles of this particular triangle add up to two right angles. But she can do this "tacitly" without the use of words "understood" or "expressed." And so although the cases of computation without the use of names that precede this particular case in *De Corpore* (i.e. at *De Corpore* i.3) are imbedded in a context in which human thinking and science are foregrounded, the above example shows that Hobbes *does* hold that there is a kind of calculation and reasoning that even the non-linguistic, natural mind can perform. Some of the operations of the imagination count as reasoning (and note that here Hobbes allows that the non-worded mind can syllogize to a limited extent). Hence, nonhuman animals *can* reason.

3. The Quasi-Logical Structure of Mental Discourse

I have been calling the discourse of the mind—when it is realized in is functional role within an organism's cognitive system—a form of reasoning. If the discourse of the mind is reasoning, then it must be capable of instantiating logical relations between mental representations. That is, if the operations performed on the conceptions in the imagination genuinely count as inferential operations, then they should exhibit logical relations like entailment. Contemporary CTM theories posit a "language of thought" (LOT), a system

[160] I note again that, as in *Leviathan*, Hobbes's claim that this person is unable to recognize that the same property holds of a different triangle should be understood as a matter of certainty. The person cannot *know*—in the infallibist, seventeenth-century way—that that new triangle's interior angles add up to two right angles.

of mental representations that is modeled on natural language. A LOT is supposed to instantiate a kind of formal system—it is a set of simple symbols, along with recursive transformations rules that determine all combinations of complex symbols achievable by a finite number of application of the transformation rules to the simple symbols. To put it briefly, the symbols of the language of thought have a propositional syntactical structure over which computational operations are performed and this structure is realized in the brain.[161] Hobbes does intend to draw an analogy between natural language and thinking.[162] But Hobbes's discourse of the mind does not count as a LOT in this, modern sense.[163] Neither does Hobbes intend to model mental representation on language, if this means "thinking is linguistic from top to bottom."[164] Hobbesian discourse of the mind is series of transformations and operations performed over *imagistic* representations. Of course, conceptions, as I have pointed out (in chapter 2) are not little pictures that the mind "gazes" at; rather, it is more fruitful and faithful to Hobbes intentions to understand him as holding that the conceptions in the mind "encode" information in a way that preserves their perceptual properties. Images in the imagination have a "modal specificity"—representational features borrowed from the features of perceptual experience.[165] Images do not exhibit the sort of syntactical structure that propositions do. In particular, being tied to by their "modal specificity"—their particular shape and color, for example—images do not exhibit the sort of combinatorial properties that propositionally structured, amodal symbols do. The simple parts of an image do not

[161] See Fodor *The Language of Thought* (Cambridge, MA: Harvard University Press, 1975)
[162] Hence, Hobbes's proposal in *Human Nature* to use the term "discursion" to "avoid equivocation" between mental and verbal discourse (*HN* iv.1); I discuss this passage briefly below.
[163] As Soles notes, *Strong Wits*, 29.
[164] Hull "Meaning," 101. Cf. Soles, *Strong Wits*, 29.
[165] See Jesse Prinz, "The Return of Concept Empiricism" in *Handbook of Categorization in Cognitive Science*, ed. Henri Cohen and Claire Leferbvre, (Amsterdam: Elsevier, 2005), 679-695.

combinatorially determine the composition of the whole in the way the way that a sentence's structure is fully determined in a finite number of steps by the syntactical rules of a language. In light of this some cognitive scientists and philosophers have either downplayed the importance of mental imagery to thought or have argued that it is encoded in the brain propositionally.[166]

Nevertheless, there are—or at least Hobbes believes there are—necessary relations that obtain between the simple parts of an image out of which a whole image is composed. So although Hobbesian mental discourse is not a LOT, it is nonetheless a language-like system, insofar as it is a series of mental symbols over which logical operations are performed according to a "pictorial" syntax. Hobbes argues, as I pointed out in the last chapter, that the ideas in the imagination "cohere" with one another, according to the laws of association and the Copy Principle, according to their manner of coherence in the senses. But, as I have just argued above, this includes not only their association and coherence one after the other, but "compositionally." I mean that Hobbes not only thinks that ideas in the discourse of the mind follow one another in the manner in which one elephant follows another through the Serengeti, but that they exhibit a (quasi)computational structure. They can be "unloosed" into simpler parts and then "collected" and "compounded" back together to form "whole" images. It is in this respect that they exhibit logical properties. This is one reason why Hobbes calls the discourse of mind in *Leviathan* the "*Consequence*" of thoughts. One thought is a causal (and so

[166] Zenon Pylyshyn "Imagery and Artificial Intelligence" in, *Perception and Cognition: Issues in the Foundations of Psychology*, Minnesota Studies in the Philosophy of Science, Vol. IX, ed. Wade C. Savage, (Minneapolis: University of Minnesota Press, 1978), 19-56. See also Jerry Fodor and Zenon Pylyshyn, "Connectionism and Cognitive Architecture: A Critical Analysis" *Cognition* 28 (1988): 3-71.). But see Lawrence W. Barsalou "Perceptual Symbol Systems" *Behavioral and Brain Sciences* 22 (1999): 577-660.

necessary) consequence of another. But there is a necessary *ordering*, Hobbes thinks, among ideas with respect to their modularity.[167]

Reconsider, for example, Hobbes's case of the "ratiocination" of the idea of a man. From a distance, I see a body. As it approaches I have a conception of an animate body. As it gets nearer and I hear him talking to me, I have the compounded conception of a rational, animate, body. Finally, when the man is standing before me, "by looking fully and distinctly upon it, [I conceive] all that [I have] seen as one thing" and "the idea [I have] not is compounded of [my] former ideas" (*De Corpore* i.3). This compounded idea—with the ideas compounded *in that order*—I judge to be the conception of one and the same thing, a *man*. They are "put together in the mind in the same order in which these three single names, *body*, *animate*, *rational*, are in speech compounded into this one name, *body-animated-rational*, or *man*" (*De Corpore* i.3). Hobbes holds that it is necessary to the conception of *man* that the ideas that compose the idea be compounded in this order (an order which is then encoded in the order of the names in a proposition).

But why does the conception have to be built up this way? Because it is *inconceivable* to compound the conception in any other order. The order of conceptions follows the order of phantasms in perceptual experience. Body is the most basic, simple conception; one which every object, insofar as it is conceivable is conceivable *qua* body. Animation is an accident of *body*. That is one can conceive of an *animated body*, but not

[167] An ordering that is much more plausible in the visual modality than, say, olfactory or gustatory. There is a way in which flavors can be "decomposed" into their parts (whisky can be smoky, with hints of vanilla, for instance); however, it's less clear that the elements of ideas formed by modalities other than vision or touch have the kind of "structure" to them that conceptions with a visual modality do (does arrangement of smokiness to vanilla affect the compounded conception of whisky by taste?). But it is important to remember that although Hobbes focuses on the visual-modal conceptions, a conception of an object is, in many instances, composed of phantasms from several modalities (the conception of *whisky* is partly visual, partly tactile, partly olfactory, partly gustatory).

body animated: body is the more basic. Again, *rational, animated, bodies* are conceivable, but a *rational*, yet *inanimate body* is not. Since *rational* is a conception we have of a body insofar as it speaks and uses words in propositions, no body can be rational without being animate. So to compute the conception of *man*, one must compound ideas in the order in their necessary order.

I do not wish to dwell too much on this point, except to propose that the natural, non-linguistic computational ability Hobbes proposes is just this natural ability to manipulate images in the imagination. Furthermore, it is has a kind of *inferential structure* in that the elements of mental representations bear logical relations to one another. The operations one can perform on an image are amenable to "analog" computations,[168] so the language of "computation" is not totally out of place. The non-linguistic computational ability amounts to a capacity to decompose and recompose—and otherwise manipulate—imagistic representations in the imagination. The "digital" computational ability of language-using humans to compute with names, presupposes this "analog" ability. As Hobbes says: the order of names in a proposition (a sentence) recapitulates the order of conceptions in a compounded imagination. Hobbes is probably underestimating the extent to which these two kinds of "computation" differ from one another. Computation with *numerals* for example, is a very different kind of "compounding" from the compounding of colors and shapes (or smells and sounds) to form images in the imagination. But while the simple parts of an image are not exactly

[168] On the distinction between analog and digital computations see John Haugeland "Analog and Analog" *Philosophical Topics* 12 (1981): 213-225. On the "analog-encoding" approach in the cognitive science of mental images see J.C. Baird and T.L. Hubbard "Psychophysics of visual imagery" in D. Algom, ed. *Psychophysical Approaches to Cognition* (Amsterdam: Elesevier, 1992), 389-440. Baird and Hubbard argue that mental imagery is a close cousin to perception, rather than language (*pace* Pylyshyn "Imagery and Artificial Intelligence").

entailed by the compound (taking entailment as a relationship between sets of sentences), nevertheless there is a logical necessity that underwrites the transformations between images in the imagination. Given a conception of a man, it *has* to be decomposable into conceptions of *rational, animate, body*. I believe Hobbes sees this as a structural property of the conception, at least insofar as it is inconceivable to compound it in any other way. Transitions between ideas are constrained by conceivability and this constraint plays a role analogous to the syntactical rules governing sentential operations. Hence, when Hobbes speaks of the coherence of ideas in the discourse of the mind, he should be understood to be implying that there is a kind of—for lack of a better term—entailment relation between certain ideas in certain transformation operations. The conception of *a man*, entails (in this sense) the conception of *rational, animate,* and *body*. So in considering a man, it is also possible to consider an *animate body*, or *body*, simply. Of course, this has no bearing on the man himself—he is clear that we do not decompose *a person* in thought, when we compute the conception (*De Corpore* vi.2). Conceptions will bear similarities to other conceptions in their simpler parts, and I suggest that Hobbes is thinking that these similarities become salient to us, when we have decompounded the conceptions into their simpler parts. Thus, decompounding *man* into its parts, I can see that humans and animals are similar in respect of *animation* and *body*. Conceiving of a human and conceiving of an animal, in both cases, entails conceiving of an *animated body*. The mind is able, naturally, to access these similarities and to use them to make judgments and (as I explore in more detail below) to form expectations. These are just the outputs of regulated trains of thought. So it seems, on the balance of the evidence, that Hobbes thinks of the natural discourse of the mind, in regulated trains of thought—

whether deliberation or in the resolution of doubt—as processes of reasoning. Their function in the organism is to yield inferences, which determine the organism's actions and opinions.

4. Voluntary, Active Thinking

Since humans, with their natural faculties of imagination and memory can reason, then so too can nonhuman animals, as they too have these cognitive faculties and they operate in the same way for them, as for us. The process of computing conceptions in the imagination, furthermore, is part of the regulated discourse of thought and so causally connected to deliberation and hence, to the determination of the will. This non-linguistic reckoning of conceptions in the imagination is a cognitive process that is causally connected to the input of the sensory states, for they are mental representations deriving from the phantasms and ideas of experience. Since this "collecting" and "unloosing" of conceptions is a regulated train of thought, it is causally connected to the determination of expectations and behavioral outputs, governed by an organism's desires. Thus, it would appear that the calculation of conceptions in the imagination is causally connected to perceptual inputs, behavioral outputs, and other mental states. It is reasoning because of the systematic role it plays in an organism's overall psychology and behavior. That is exactly the sort of proto-functionalist theory of the cognitive states of the mind toward which I have been arguing Hobbes is lurching and which we have been exploring. People do it. Animals do it. Neither requires language to do it. Why not call this thing "thinking?"

As I mentioned in the introduction, part of Philip Pettit's version of the "made with words" thesis is that the natural, non-worded animal mind is (allegedly) incapable of "voluntary," "active" thinking in the way that the worded, human mind is. Pettit recognizes that Hobbes posits processes like those I explicated in the previous sections and that they are common to both human and animal mentality, but Pettit claims that "no matter how rational the process or result, this succession of conceptions will not be prompted or guided by the agent's desires in the manner of an active, intentional performance."[169] However, as I pointed out—and as Pettit recognizes—the succession of thoughts from desired ends, to the means, is a regulated train of thought governed and prompted by an agent's desires. Thus, Pettit's thesis that Hobbes counts prudence, sign-conjectures, and reasoning without words by the compounding conceptions in the imagination, as mental processes that are somehow less than thinking (properly so-called), must hinge on the "manner" in which a genuine thought process is actively and intentionally "prompted." Pettit gives an example to help paint an intuitive picture of the sort of thinking that he has in mind when he denies that animals can think: the sort of thinking that we "naturally ascribe" to Rodin's *Le Penseur*.[170] The Thinker is hunched, brow furrowed, chin on fist, buried in deep thought (and naked, for some reason): no creature with an un-worded, natural mind will show this "sort of active reflection."[171] The image is evocative, there is no doubting that, but it is difficult to pin down exactly what Pettit has in mind. Probably Pettit is right that no nonhuman, non-worded animals are going to display *exactly that* kind of thinking. Dolphins are clever, but I should be

[169] Pettit, *Made with Words*, 24.
[170] Pettit, *Made with Words*, 24 and 37.
[171] Pettit, *Made with Words*, 24.

surprised to discover that they are particularly *deep* thinkers. But what exactly is this kind of thinking? What sense of "active" and "voluntary" does Pettit have in mind?

The sense in which Pettit intends "active" to be opposed to "passive" is, as I understand him, "active" in the sense of "voluntary." Animal thinking is passive, because it is supposed to be involuntary:

> Particular, particularistic thinking involves the involuntary succession of conception after conception, whether in an unorderly fashion or one that is regulated by some organizing desire. In either event, it is a case of vital or organic motion, akin to the beating of the heart or the adjustment of posture to kinesthetic cues. It is not a case, in Hobbes's language, of animal motion that is driven, as in a voluntary act, by the desire for a certain goal and the representation of that motion as the way to that goal.
>
> According to the Hobbesian story, however, access to words means that thought can become not just general or classificatory in character; it can assume an active, voluntary profile. People will no longer just undergo thought processes…They can now set themselves questions, identify the information they need in order to answer those questions, and undertake to consider what is true, as well as what follows from what, in a voluntary or intentional search for the answers to their questions. [172]

And in this way, humans, using words, think like the Thinker. The picture, I gather, is that the human mind is capable of voluntary thinking because it can "set questions for

[172] Pettit, *Made with Words*, 37.

itself" in a voluntary manner and it does this by performing certain actions. Humans using language voluntarily utter questions they intend to answer—literally *setting* questions for themselves, marking up notebooks and making noises—and in this way, human thinking is voluntary thinking and so active thinking, worthy of the label. On the other hand, the sort of "thought processes" animals engage in—"thinking" only homonymously—is determined not by voluntary acts of the will, but only by desires. It is a passive "vital motion," like respiration and digestion.

But there are some serious problems with what Pettit is claiming here as an interpretation of what *Hobbes* thinks. They stem from a misunderstanding of Hobbes on voluntary activity. As Pettit notes, Hobbes is pretty clear that only animal motions—motions of the limbs, directed at objects of desire—strictly speaking count as voluntary. But I think Pettit underappreciates a few points about Hobbes's definition. As I argued in the last chapter, and as we saw from his debate with Bramhall, Hobbes holds that deliberation is a causal-functional state of a whole organism. Animals—both human and nonhuman—deliberate. The deliberative process is a process whereby an organism's practical judgments are executed in an action. The process begins in conceptions, derived from the senses, and causes behavior (or, at least, behavioral inclinations) via the passions. Any action taken by an organism resulting from this particular process is a voluntary action and an act of will on Hobbes's view. He is very insistent on this: *animals deliberate* and they do so in the same sense that we do. Animal deliberation is not some second-class, junior Webelo thing they merely *undergo*, while we *do* the genuine thing. It's the real deal. It is critical to his compatbilism and his materialism that this be so. What distinguishes voluntary action from an involuntary action is the role that

conceptions and passions play in the process. A person who throws his cargo overboard to save his ship from sinking acts under duress, but still voluntarily, for their action was caused by the conception of their peril, the passion to avoid it, and the conception of the way to achieve this end (e.g. *HN* xii.3).[173] Both actions are equally *necessitated*—they are events that *happen* in the giant interconnected causal nexus of the great World-Machine—yet equally *voluntary*. The reason the "vital motions" are non-voluntary is not because they are somehow *more* necessitated and passive, but because they implicated in a different causal-functional system: the spleen breaks down blood cells, produces bilirubin that the liver excretes in bile not because we conceive of any benefit conferred unto us thereby, but as part of the natural operation of the lymphatic system.

I suppose that Pettit is aware of this. But then the claim that for Hobbes the "thought-like" thing that animals "undergo" is just another "vital motion" cannot be sustained. The deliberative process, in which the orderly discourse of the mind features in a particular causal role, is a cognitive power, not a "vital" power, or life-function. Mental states play an entirely different functional role from the vital motions—ideas feature in various mental states, input sense, output behavior, while vital motions do things like digest food and pump blood. They are simply different causal-functional systems. Importantly *all* the non-vital motions—the animal and cognitive—go through the *conceptions*, or the cognitive states. That's no accident, since he wants them to be *mental powers* and precisely *not* like the vital motions, which do not involve conceptions (and so do not involve deliberation and hence are not voluntary).

[173] Cf. *Nicomachean Ethics* III.1 (1110a9-12).

But the trouble is that Hobbes is also pretty clear that only animal motions—actions performed with the limbs and other overt, deliberate behaviors—can be *strictly speaking* voluntary. Thought is never voluntary in any direct sense, because conceptions follows the passions, and the will follows the conceptions. Hobbes puts this point in a memorably snarky way in *Human Nature*: the appetites are not voluntary because they are not the *product* of the will but *are* the will and so "a man can no more say he will will, than he will will will, and so make an infinite repetition of the word [*will*]; which is absurd" (*HN* xii.5). He goes on further to argue:

> Forasmuch as *will to do* is *appetite*, and *will to omit*, *fear*; the *cause* of *appetite* and *fear* is the *cause* also of our *will*: but the propounding of benefits and of harms, that is to say, of reward and punishment, is the cause of our appetite, and of our fears, and therefore also of our wills… and consequently, our *wills* follow our *opinions*, as our *actions* follow our *wills* (*HN* xii.6).

That is a statement of the causal chain in which Hobbes thinks voluntary action consists: the conception of a good causes the will to pursue that good and that desire is executed in action, after being determined by deliberation. The will, follows the passions, which follow conceptions, which are caused by sense. That's the causal-functional story. Conceptions can cause other conceptions—this is just part of what deliberation consists in after all, for the conception of the end desired caused the conception of the means we have observed conducing to the production of that end. Conceptions, however, do not follow the will; it's the other way around. But then it would seem that mental activity is always "intentional" in a sense, if that means "goal directed," since the conceptions of passions drive the thought-process. The orderly discourse of the mind might not (by

itself) constitute a voluntary *action*, but it is certainly directed by the desire for a goal and by the mental representation of the goal. A guided train of thought is guided by an *animal's* conception of the goal. Yes, this conception causes the animal to conceive of the means to achieve its goal; yes, this causes it eventually to act. But that's just a causal-functional description of the deliberative process, the same process humans undergo. Man and beast are supposed to be *machine-like* through and through. If that is "too passive," so be it; but that is *Hobbes's view*.

I said that thought is never voluntary in Hobbes's strict sense, but there could be an indirect way in which voluntary actions can play a causal role in thought. And I know that this mainly what Pettit in mind.[174] The word-wielding human animal can cause itself to have trains of thought by intentional speaking to itself. That would be a voluntary action in Hobbes's sense, since it would be an overt act, presumably caused by the desire to speak. But the sense in which this kind of thinking is a voluntary action is trivial. It does not do anything to really separate human thinking from animal thinking and of itself certainly does not justify treating animal cognition as something that falls short of any important benchmark set by human thinking. By Hobbes's causal-functional story of voluntary action, there is no genuine voluntary motion without a prior conception. Voluntary action is partly constituted by the vital causal role played by the conceptions "because *going*, *speaking*, and the like Voluntary motions, depend alwayes upon a precedent thought of *whither*, *which way*, and *what*" (*Lev*. vi, 78: 13-15). That is why Hobbes claims that "the Imagination is the first internall beginning of Voluntary Motion" (*Lev*. vi, 78: 15-16). Motions are voluntary when they have the *right* kind of cause: an

[174] See Pettit, *Made with Words*, 37; quoted above.

internal cause, beginning from the conception of an object of some passion (derived from sense experience). Internal, as opposed to external—like jumping off of a bridge as opposed to being shoved off—and caused by conceptions, as opposed to some other internal cause—as life-functions are. Hobbes includes speaking on this list of voluntary actions. Presumably then it follows the same pattern as any other voluntary action. I conceive of something, I desire to say it, I express it in an utterance. I conceive of something I desire to know, I form a question, I desire to ask a question, I ask the question. I can ask myself a question—we do this all the time—and the question can cause conceptions, and further conceptions, until at last I settle on an (satisfactory) answer.[175] And in this sense Hobbes would happily grant that thinking is voluntary: we have a case of conceptions caused by voluntary speech. Yet that process has to begin, according to the picture, with a desire to speak and to ask oneself a question in the first place, since it is voluntary. It is a case of a desire causing conceptions causing an action causing conceptions. But nowhere do I see a process more deserving of the label "active" than that which occurs in the case of nonhuman animals. All action is caused by a precedent thought, all thought by a precedent desire. What made that thought process voluntary? It was an action *caused* by the conception of speaking and the *desire* to speak. That is the same story in both humans and nonhuman animals, with the only difference being that nonhuman animals cannot talk. The story we told in the case of voluntary speaking, for the sake of thinking, seems like the sort of near-circularity one would expect from a causal-functional analysis of a mental act: what makes a train of thought a voluntary train of thought is that it was caused by a voluntary action; but voluntary

[175] See *Lev*. vii, 98:1-17.

actions are caused by trains of thought causing the will to perform those actions.[176] It's a case of thought depending on action and action on thought.[177]

All voluntary activity is caused by the conception of a desired object or end and the conceptions of the means to achieve that end. All thoughts in a regulated discourse of the mind are prompted by desires and are guided by desires (reason is and ought only to be the slave of the passions). I grant that there is an indirect sense in which a person, using voluntary utterances, can voluntarily cause their own thoughts. But I argue that there is nothing particularly *special* about this voluntary human activity making what we and we alone do, *thought*. The causal story is the same here as it is anywhere else in the animal kingdom: desires cause conceptions cause behavior. Pettit is looking for a "manner" in human thoughts by which human thoughts are guided that marks them as somehow special. The voluntariness of thought is not the place to find it, especially if the consequence is the denial that animals can think. The difference in the manner in which human and animal thoughts are caused is to be found in the actual causes of thought on Hobbes's picture: the desires and passions. And here Hobbes does claim that there is a difference that makes a difference between animal and human thinking whilst maintaining that animal thinking is still thinking. Hobbes grants curiosity to us. Hobbes defines the passion of curiosity this way:

[176]David Armstrong "The Causal Theory of the Mind" *Neue Heft für Philosophie* 11 (1977): 82-95

[177] I point out that Hobbes thinks we can voluntarily perform experiments: "The *remembrance* of …what was *antecedent*, and what *consequent*, and what *concomitant*, is called an *experiment*; whether the same be made by us *voluntarily*, as when a man putteth any thing into the fire to see what effect the fire will produce upon it…" (*HN* iv.6). I do not see why that kind of voluntary experiment—which would amount to voluntarily causing thoughts and answering a curiosity—would require language. I also do not see why, even on Hobbes's assumptions, an animal couldn't make an "experiment" in this sense. Presumably the first chimp to come up with using a leaf as a termite-fishing device made a couple of "experiments" at it.

> *Desire* to know why, and how, [is] CURIOSITY; such as is no living creature but *Man*: so that Man is distinguished, not onely by his Reason; but also by this singular Passion from other *Animals*; in whom the appetite of food, and other pleasures of Sense, by praedominance, take away the care of knowing causes; which is a Lust of the mind, that by a perseverance of delight in the continuall and indefatigable generation of Knowledge, exceedeth the short vehemence of any carnall Pleasure (*Lev*. vi, 86: 16-22).

In *Leviathan* (though I do not find this in *Human Nature* and *Anti-White*) Hobbes also claims that the passion of curiosity is responsible for a difference between the nonhuman animal and the human, regulated train of thought. All animals can discourse from the thought of an object desired back to its cause—these trains of thought play a causal role in their deliberation and voluntary actions. But we humans engage in a special form of discourse—trains of thought leading from the conception of a thing to a search for "all the possible effects, that can by it be produced; that is to say, we imagine what we can do with it, when wee have it" (*Lev*. iii, 41: 28-29 and 43: 1). This curiosity, Hobbes continues, is "hardly incident to the nature of any living creature that has no other Passion but sensuall, such as are hunger, thirst, lust, and anger" (*Lev*. iii, 43: 2-3).

In *Human Nature* and in *Anti-White* Hobbes goes so far as to claim that this passion of curiosity is the explanation for the fact that human beings, alone among the other animals, invented speech and developed reason (i.e. science). New experiences and new knowledge cause in the curious a "*hope of knowing* somewhat he knew *not before*" for curious humans do not flee the unknown but "looketh for the cause and beginning of everything that ariseth new" (*HN* ix.18). Names were invented because "some inquisitive

persons have found no satisfaction in enjoying nature unless they have scrutinized her closely and known the causes of everything" (*Anti-White* xxx.15, fol.345v; cf. *HN* ix.18). As an historical or evolutionary story of the development of language, Hobbes's account is probably false. But that is irrelevant for the purpose at hand. I want to draw attention to two things that these claims illustrate about Hobbes's view on curiosity and the desire for knowledge. The first is that, at least according to the account in *Human Nature* and *Anti-White*, since curiosity caused the invention of names, human beings were driven by an "indefatigable lust" for knowledge *before* they became word-using, rational creatures (reckoning reason as a faculty of the mind). The second is that this lust for knowledge is supposed to be a powerful motivating passion. If one is looking for Hobbes's account of the source of the difference between the way humans think and the way animals think, then here you have it. It is not the faculty of names, allowing us to voluntarily ask questions which we could not have done before language. That is a kind of mirage—there is no "extra" voluntariness or activeness one gets out of that story. Instead it is the passion of curiosity makes us like Rodin's Thinker. We humans are the deep thinkers because we—or some of us—are not totally blinkered by the quest to immediately gratify bodily desires and pleasures. If dogs could speak, they would still be gluttonous and shallow, voluntarily posing questions like: When's dinner? What's for dinner? Are you going to finish that? Of course we humans care about those things too—and we care about them a great deal, because they are important—but the point is that we also get joy from the discovery of causes and from admiring novel inventions.

Recall that in the examples I quoted above Hobbes illustrates computation and reckoning without the use of words by asking us to imagine a human being contemplating

geometry without words. It is an un-worded *human* in those cases who is worried about triangles, not a dog. Curiosity is a passion and a desire. It is an abiding desire that causes the intense thought-activity you see in the Thinker. That is what defines the thinking of a reflective, philosophical person in Hobbes's view. Her thought is not is not any *more* "voluntary" and "active" and "real" than anyone else's—it is still regulated train of thought *caused*, like any other regulated train of thought, by a passion. The difference is in the passion of curiosity: the Thinker's thought is moved by the lust for causal knowledge. *That's* what keeps him in his seat.

There is very little textual support for Pettit's claim, but he cites two specific passages in *Human Nature* to prove his case. The first piece of textual evidence Pettit cites in his argument is Hobbes's proposal in *Human Nature* to use the word 'discursion' when speaking about mental discourse, to avoid equivocation, for "the word discourse is commonly taken for the *coherence* and consequence of words" (*HN* iv.1). Pettit argues that Hobbes's "terminological safeguard" is supposed to isolate the "passive association of ideas" found in animals and pre-linguistic humans (the "rationality of which appears by the grace of nature"), from the active, voluntary reason in the full-blooded sense, available only to humans in the form of literal discourse.[178] But I do not find the reasoning Pettit attributes to Hobbes compelling. Hobbes does not seem to worry too much about the possibility that someone might mistake his meaning when he speaks of the "mental discourse" in *Leviathan*. If people are likely to get linguistic discourse confused with mental discourse, and the former is responsible very different kind of cognitive capacity, why would Hobbes speak of mental discourse at all? Why invite the

[178] Pettit, *Made with Words*, 15.

confusion, especially where there is the possibility of making what would amount to a major philosophical error on Pettit's reading? It seems far more likely to me that Hobbes is pressing an *analogy* between linguistic discourse and non-linguistic thought. Since mental discourse is like linguistic discourse, in the sense that it is a series of transformations of and operations on representations, it is worthy of the name "discourse." And so the practice, which Hobbes admits might cause confusion, of speaking of non-linguistic thought as a discourse is justified. Hobbes's motivation for alerting the reader to the potential confusion has to do—and Pettit is right about this—with the difference between the special, human capacity to reason with *names* and the non-linguistic train of thought. But would not make sense to treat both as cases of "discourse" unless there *were* a sense in which there is reasoning *without* names.

The other piece of textual evidence Pettit cites in direct support of the claim that the natural mind is "passive" is *Human Nature* v.1. Because the "*succession* of conceptions in the *mind*" are derived by the Copy Principle from the order in which they occur in the senses, Hobbes claims, "it must needs follow, that one *conception* followeth *not* another, according to our election, and the need we have of them, *but* as it *chanceth* us to hear and see such things as shall bring them to our mind" (*HN* v.1). The remedy for this issue—which Hobbes claims is a weakness of the memory—is the invention of "marks" for the sake of remembrance and names are just one particularly useful kind of mark, imposed for the sake of remembering conceptions (*HN* v.1-2). I will come back to the issue of names as marks imposed to recall conceptions in chapter 5. Here my focus is on the issue of passivity and Pettit argues that *Human Nature* v.1 shows that the

operations of the natural, non-linguistic mind are non-voluntary motions that fall in the same class as the vital motions of digestion and respiration.

I confess that this is a recalcitrant piece of text and I am not quite sure how to take Hobbes's meaning. I suspect that since the focus in *Human Nature* v.1 and v.2 is on the weakness of the memory as a *cognitive* defect (as is usually his point when he mentions the weakness of the memory), Hobbes intends to claim that the natural mind is dependent upon the connections between ideas and conceptions *as forged in experience*. Hence, the point is not that an animal has to wait until it actually *sees* an *F* to think about a *G*; rather, the point is that unless it has seen *F*'s and *G*'s paired up in sense experience before, then it cannot think of an *F* paired with a *G*. But, admittedly, that is not a watertight case, since the example Hobbes gives is of "brute beasts" that bury the "superfluity of their meat" and forget where they hid it "and thereby make no benefit thereof in their hunger" (*HN* 1.v). That has to be false—a dog sure seems to remember where he buried a bone—and I cannot believe Hobbes is unware that animals *do* make use of food-stores (there are squirrels in England!). Furthermore, Hobbes's claim in *Anti-White* (xxx.13, fol. 343v)—written around the same time as *Human Nature*—that birds find their way to nesting sites by memory, seems in tension with what he is claiming at *Human Nature* v.1. The example Hobbes gives of a human invention that fixes the problem he has in mind—a buoy floated before submerged rocks, to alert sailors to the danger (*HN* v.1)—seems to suggest that the problem an animal has in remembering the place where they hid "the superfluity of their meat" is that they cannot remember *the exact* place where they buried it. The sailors would be in the same position with respect to the submerged rocks, without a buoy. I'm no sailor, but one patch of water looks about the same as any other, so the

buoy serves to pick out exactly *which* spot in the general vicinity to avoid. Hobbes may have something like this in mind, but it is still hard to see what that has to do with the problem he cites at the beginning of the passage (that the order and connection of ideas is the same as the order and connection of experience; hence, ideas do not occur as we have need of them, but as they "chanceth" us to experience them) and I still do not see why an animal cannot find where he's buried his food. Perhaps Archie cannot remember directly precisely where in the flowerbed he buried the bone, but he knows it's there and can surely smell his way to it.

I am not sure how to answer these interpretive questions, but Pettit's case that *Human Nature* v.1 shows that Hobbes thinks animal cognition is a kind of *vital motion* is not any stronger. To the best of my knowledge, Hobbes never makes this *particular* claim about the weakness of natural mind in any other work. Besides, as we have seen, the preponderance of the text bears witness against the notion that Hobbes believes the discursion of the animal mind is a form of "vital motion," rather than thinking.

Chapter 5:

Signification, Understanding, and Names

1. Introduction

In the previous chapter I argued that the "made with words" thesis rests on the assumption that there is a "great divide" between nonhuman, non-linguistic minds and the minds of fully mature, adult humans. Pettit's "master argument" enshrines this assumption in the further claim that "[t]hose who are able to speak, and only those who are able to speak, have the capacity for active, classificatory thought—in short, for 'thinking.'"[179] That is, according to this interpretation, non-worded animals (and non-worded humans, come to that) cannot engage in the sort of "active, classificatory thought" in which (allegedly) only beings with the capacity to speak and understand a language can engage. Since animals cannot talk, they cannot think; therefore, whatever capacity the human mind has for the active, classificatory sort of thinking, it must be by dint of language and so "[t]he ability to think in this sense is not sourced in the natural mind, since that mind is common to human beings and unthinking animals."[180]

I think this is a very implausible view. Archie clearly thinks and deliberates in an active manner—at least he certainly seems to be actively trying to work out how to get through the fence surrounding the vegetable garden in order to get at the tomatoes. Archie also is able to group and classify things, if only implicitly—it sure seems like he

[179]Pettit, *Made with Words*, 26. See chapter 4, section 1, above.
[180]Pettit, *Made with Words*, 26.

can recognize ripe tomatoes and distinguish them from apples and he seems to be able to distinguish my friends from strangers (just ask the mail-carrier). But regardless of whether or not it is true that nonhuman animals and humans that lack linguistic competency are able to think, *Hobbes* believes that they can. He does not share with the "language forward" commentators the assumption that the only kind of thinking worth the title—active, classificatory thinking—is linguistically conditioned thinking. In the last chapter I argued that Hobbes thinks the thought processes of non-worded, natural minds are every bit as "active" as the thought processes of the fully language-competent. I have already shown that Hobbes recognizes that nonhuman "brute" animals (and pre-linguistic children and other non-worded human beings) deliberate. Hobbes does not hold that the regulated trains of thought—the succession of conceptions guided by the conception of an object of desire, which is an operation of the imagination common to both the non-linguistic, nonhuman animal mind and the fully-worded human mind—are just "happenings" that simply "go on" in the bodies of the "brute" animals.[181] The successions of conceptions in a guided train of thought constitute, on Hobbes's view, genuine thinking: guided trains of thought must be understood not as a mere "vital motion" in an organism, but as cognitive processes that play systematic, causal-functional roles in organisms. Deliberation is a thought-process characterized by a particular functional role in an organism—deliberation is a succession of conceptions in the mind that, eventually, terminates in an execution of practical judgment in voluntary behavior. As we saw from *Leviathan* vii and his debate with John Bramhall in the *Questions Concerning Liberty*, *Necessity*, *and Chance*, Hobbes emphatically maintains that fully mature, linguistically

[181] See Pettit, *Made with Words*, 24-25.

competent humans and nonhuman, non-worded animals can deliberate and in the same sense.

But in chapter 4 I argued that according to Hobbes animals can do more than just deliberate like us. There I identified a natural power of reasoning—a natural ability to make inferences and to "compute" conceptions—that does not depend on the use and understanding of a language. Non-linguistic minds can also reason—in one sense of the term—just like a linguistically conditioned mind. Like the causal-functional distinction Hobbes draws between memory and imagination, different thought-processes are individuated by the different causal-functional roles that a guided train of thought plays in the overall cognitive and behavioral economy of an organism. A guided train of thought is a process of deliberation, according to Hobbes, when it plays the sort of causal-functional role ascribed by our folk-psychology to deliberation. The causal-functional circuit in which deliberation consists takes the "input" from the senses and a conception of an object desired and "outputs" behavior, with a guided train of thought mediating the "inputs" and "outputs." Reasoning, understood as an operation of the imagination, is a guided train of thought characterized and individuated from deliberation by its functional role. Deliberation determines voluntary behavior. Reasoning determines inferences—it begins in a desire for knowledge and yields an opinion or judgment, settling doubt (*Lev*. vii, 98: 1-17).

In this chapter I complete my refutation of the "made with words" thesis. Specifically, I argue against the claim that the natural mind is a prisoner of "the imagined particular" and so is unable to engage in classificatory thought, nor to think beyond the immediate present. I argue that on Hobbes's theory, the non-worded, natural mind is

capable of at least a rudimentary form of classificatory thinking and is not bound to the spatial and temporal present. Neither classificatory thinking, nor the capacity to reason beyond the immediate present are distinctive features of human thinking, according to Hobbes's philosophy of the mind, and they equally characterize the thinking of "brute beasts." According to Hobbes's theory, organisms operating with only their non-linguistically conditioned, natural faculties of sense and imagination are able to do these very things that the "made with words" thesis alleges they cannot. They can engage in "classificatory thought"—in the sense that they can recognize and remember similarities between objects on the basis of their accidents and recollect these conceptions to guide their behavior—and they can think about more than simply the spatio-temporal present. Both of these are natural powers of the mind that depend only on the natural operations of the imagination, unassisted by language. Contrary to "language forward" readings, the ability to understand and speak a language, according to Hobbes, absolutely *is* "sourced in the natural mind."

The ability to use and understand language presupposes a natural, pre-linguistic ability to consciously apprehend the accidents of individual bodies and to notice and recall similarities between them. The ability to use and understand a language—to understand the signification of names—depends on a prior, non-linguistic natural ability to recognize signs and to make sign-inferences. Both classificatory thinking and the ability to reason about the future (and the unobserved past) are essential parts of Hobbes's account of signs and sign-inferences. Sign-inferences involve the consideration of what will be, what could be, or what has been, and what might have been (*Lev*. vii, 98: 9). It is Hobbes's view that an organism is (as we might put it) access-conscious of the

accidents of the individual material bodies it encounters in sense perception and the similarities between them, insofar as they are represented in the conceptions of the imagination. These similarities between objects, in respect of their accidents, are stored in the memory as conceptions and these mental representations are available for deployment in the guidance and control of an organism's expectations, behavior, and the generation of further mental states.[182]

In a recent defense of a version of the "made with words" thesis, Gordon Hull claims that "Hobbes concludes that thought itself is inseparable from naming" based in part on the grounds that (allegedly) "[his] reduction of the intellect to imagination implies [that] thinking is linguistic from top to bottom; language is not something added later to express thought."[183] I agree with Hull that Hobbes is attempting such a reduction, but Hull misses the point. I think this mistake is emblematic of the failings of the "made with words" thesis. As I claimed in chapter 4, the point of the reduction is to give a deflationary account of reasoning—Hobbes is trying to show that all cognition can be explained by the operations of the imagination and this *includes* the ability to use and understand a language. In section 2 I examine the claim that the "intellect" reduces to the "imagination" in light of Hobbes's seventeenth-century context. Speaking very broadly, according to the scholastic theory the "understanding" or "intellect" (*intellectus*) is a faculty that forms concepts. This faculty plays an important role in signification and

[182] Following Ned Block's definition of access consciousness ("A-consciousness"): a mental representation is "A-conscious" if it is "poised for control of speech, reasoning and action" in a functional sense, so that "what makes a state A-conscious is what a representation of its content does in a system" ("Concepts of Consciousness," 279 and 280). Cf. Block "How Many Concepts of Consciousness?" in Ned Block, *Collected Papers*, vol. 1, 215-247.

[183] "Meaning," 101. See also Gordon Hull, *Hobbes and the Making of Modern Political Thought*, 70-86 and "Hobbes's Radical Nominalism" *Epoché* 11 (2006): 201-223.

linguistic competence. Signification (*significare*) is a psycho-causal process by which the understanding grasps what is signified by a sign. An *act* of understanding or "intellection" (also called *intellectus*) is to have a concept deployed in cognition. Signs signify by causing an act of understanding the concept of the thing signified (signs cause the *intellection* of the significate of a sign). Medieval philosophers used "signification" (*significare*) to cover *both* natural signs and conventional signs. Looking at Hobbes's definitions of "understanding," we can see that this is precisely the sense in which he takes both "understanding" and "signification." In reducing the understanding to the imagination, Hobbes is attempting to explain understanding as an operation of the imagination. This depends on his naturalistic account of signification, including the signification of words. We are said to "understand" a conventional sign when we have conceptions caused by the sign.

In section 3 I build on the observations of the previous section. Hobbes provides only one general definition of *sign*, which is meant to apply equally to natural signs and to both non-linguistic and linguistic artificial (i.e. conventional) signs. Hence, to understand Hobbes's views on the signification of words, it is necessary to understand his *general* account of signification. In section 3 I provide an analysis and interpretation of this definition, which I call the "semiotic" interpretation in deference to the Aristotelian and Hellenistic tradition to which Hobbes's account owes a considerable debt.[184] As I

[184] My analysis partly coincides and extends the analysis given by Walter Ott, *Locke's Philosophy of Language*, (Cambridge: Camridge University Pess, 2004), 13-21. Ott likewise sees that Hobbes's theory of signification draws on the Hellenistic tradition, but Ott overemphasizes the extent to which this tradition really diverges from the medieval scholastic account (see below, section 2). As I argue, Hobbes's theory of signification can be fruitfully understood as a naturalization of the medieval notion by "Hellenization" (see below, sections 2 and 3). Ott also neglects to see that Hobbes's view is on signs is not so much a Stoic account, as *Epicurean* (see sections 2 and 3).

shall argue, the definition shows that the sign/object-signified relationship is essentially an epistemic or cognitive relation, a triad grounded in an in-eliminable, psychological third element: the *interpreter* of the sign, for whom the sign stands as a sign of the signified object. Memory, experience, and associative learning play an essential role—signs are signs only there for those who are "trained to see" them. In effect, Hobbes naturalizes and "empiricizes" the scholastic *significare*. The conditioned expectations and presumptions of the sentient beings interpreting the signs, who use the signs to make inferences, are constitutive of signs. Thus, Hobbes posits *a natural*, non-linguistic ability to grasp and understand signs, a natural capacity to "take signs from experience," to *read* signification into experience. He is clear that this is a faculty shared by any living creature with the capacity to sense and to retain the conceptions of sense experience in the imagination.[185]

But before I begin, it would be helpful to have some texts before us and to briefly touch on some background confusions that I believe are powering the engine of the "made with words" thesis. What follows are Hobbes's definitions of names and his discussions of the "uses" of names.[186] Hobbes accompanies each of these discussions

[185]Deborah Hansen Soles also recognizes that signification is a psycho-causal triadic relation between sign, significate, and observer, but does not develop the account. In particular Sole's, does not see the connection between Hobbesian signification and scholastic *significare*. Thus, when Soles comes to characterize the linguistic notion of signification, Soles attributes to Hobbes a "causal theory of reference," claiming that a name signifies a causal chain that links the user of the name to the original baptism (*Strong Wits*, 55-68). For a concurring view, see James Murphy, *The Philosophy of Positive Law: Foundations of Jurisprudence* (New Haven and London: Yale University Press, 2005), 117-126.

[186]To obviate some misunderstandings that might derail someone unaccustomed to seventeenth-century jargon: what Hobbes is calling "names" are "terms"—the simple categorematic parts of a proposition that stand for or "supposit for" objects they are true of. His use of "name" therefore covers both what we would think of as proper names and predicates (a proper name just being a limiting case of a term, true of one and only one thing). For example: ignoring the quantifier—which Hobbes treats as a special operator (a "part of a name") that attaches to names to signify their quantity (*De Corpore* ii.11) —in the proposition "All men are mortal" the words "men" and "mortal" are the terms of the proposition, or what Hobbes would call "names," being true of men and mortals respectively. I also note that Hobbes does not hold that every word is a name or term (see, e.g., *De Corpore* ii.7 and ii.11 and his discussion of the copula). Hobbes prefers to

with a brief and blunt statement of his nominalism. Though it may seem tedious, I believe that they are worth quoting extensively; when the texts are laid out before us, the weaknesses of the "language forward" interpretations become more apparent. What emerges from these passages is a picture that looks *prima facie* at odds with the "made with words" thesis. Beginning with *Anti-White*:

> The limits of any magnitude cannot be recalled without a permanent and perceptible means of measurement, nor can colours be recalled without a perceptible and permanent criterion; and without some perceptible and permanent 'note' no image or fancy can be conjured up that resembles a past one. By 'note' I mean 'a thing that is perceptible by a sense and is permanent. It may be the thing itself—or at least [a thing] like it brought forward by our own choice such that, on our noticing it, there is aroused a fancy similar to that fancy we wish [to revive] of the past' (*Anti-White* xxx.14 fol.344v).

> To proceed—a name or appellation is a human sound. Say a person has something in mind, of which he retains some mind-picture. He applies to, or imposes on, the thing the human sound as a 'note' enabling him to conjure up a similar mind-picture. The consequences are three:
>
> (*a*) All things that in any way resemble one another have a certain single name in common. For instance, given any number of things resembling one another as regards colour, and one of them is named 'white' because of its colour, all the remainder will be said to be white. That name 'white' is assigned because this is

use 'name' rather than 'term' to emphasize his nominalism: unlike, for example, Ockham, he does not admit universal terms into "mental discourse." All of Hobbes's universal terms are linguistic.

> the colour of all things severally that are, as to colour [*eatenus*], alike. 'A common name' is therefore the same as a universal, because things given names are individual, but a single name is called 'universal' because it is assigned to universals [i.e. given universal "imposition"].
>
> (*b*) It follows that the same thing has names almost beyond number. Anything that is compared with countless [other] things will resemble some in one respect, others in another. So the things will have a name in common with each thing resembling it in every several comparison; it will therefore have as many names as there are ways in which it may be compared. … (*Anti-White* xxx.16, fol. 346).

In *Human Nature*, as we saw in chapter 4, Hobbes claims that "one *conception* followeth *not* another, according to our election, and the need we have of them, *but* as it *chanceth* us to hear or see such things as shall being them to our mind" and that this is (somehow) confirmed by the "experience we have hereof, is in such brute beasts, which, having the providence to hide the remains and superfluity of their meat, do nevertheless want the remembrance of the place where they hid it, and thereby make no benefit thereof in their hunger" (*HN* v.1). But after this (surely false) claim, Hobbes goes on to define names:

> [M]an, who in this point begineth to rank himself somewhat above the nature of beasts, hath observed and remembered the cause of this defect, and to amend the same, hath imagined or devised to set up a visible or other sensible mark, the which, when he seeth it again, may bring to his mind the thought he had when he set it up. A *mark* therefore is a *sensible object* which a man erecteth voluntarilty to himself, to the end to *remember* thereby somewhat past, when the same is

objected to his sense again: as men that have passed by a rock at sea, set up some mark, thereby to remember their former danger, and avoid it (*HN* v.1).

In the number of these *marks*, are those *human voices*, which we call by the *names* or appellations of things sensible by the ear, by which we recall into our minds some conceptions of the things to which we gave those names or appellations; as the appellation *white* bringeth to remembrance the quality of such objects as produce that colour or conception in us. A *name* or appellation therefore is the *voice* of a man *arbitrary*, imposed for a *mark* to bring into his mind some conception concerning the thing on which it is imposed (*HN* v.2).

Seeing there be *many* conceptions of *one* and the same thing, and for *every* conception we give it a *several* name; it followeth that for one and the same thing, we have many names or attributes… And again, because from divers things we receive like conceptions, many things must needs have the same appellation: as to all things we *see*, we give the same name of *visible*… and to all those names we give to *many*, are called *universal* to them all; as the name of man to every particular of mankind…(*HN* v.5).

The universality of *one name* to many things, hath been the cause that men think the *things* are themselves universal; and so seriously contend, that besides Peter and John, and all the rest of the men that are, have been, or shall be in the world, there is yet something else that we call *man*, viz. *man in general*, deceiving themselves, by taking the universal, or general appellation, for the thing it signifieth… (*HN* v.6).

In *Leviathan*:

> The generall use of Speech, is to transferre our Mentall Discourse, into Verbal; or the Trayne of our Thoughts, into a Trayne of Words; and that for two commoditites; whereof one is, the Registering of the Consequences of our thoughts; which being apt to slip out of our memory, and put us to a new labour, may again be recalled, by such words as they were marked by. So that the first use of names, is to serve for *Markes*, or *Notes* of remembrance. Another is, when many use the same words, to signifie (by their connexion and order,) one to another, what they conceive, or think of each matter; and also what they desire, feare, or have any other passion for. And for this use they are called *Signes* (*Lev*. iv, 50: 1-17).
>
> Of Names, some are *Proper*, and singular to one onely thing; as *Peter*, *Iohn*, *This man*, *this Tree*: and some are *Common* to many things; as *Man*, *Horse*, *Tree*; every of which though but one Name, is nevertheless the name of divers particular things; in respect of all which together, it is called an *Universall*; there being nothing in the world Universall but names; for the things named, are every one of them Individuall and Singular.
>
> One Universall name is imposed [*impositum*] on many things, for their similitude in some quality, or other accident: And whereas a Proper Name bringeth to mind one thing onely; Universals recall any one of those many.
>
> And of Names Universall, some are of more, and some of lesse extent; the larger comprehending the less large: and some again of equall extent,

> comprehending each other reciprocally. As for example, the Name *Body* is of larger signification than the word *Man*, and comprehendeth it; and the names *Man* and *Rationall*, are of equall extent … (*Lev*. iv, 52: 1-17).
>
> By this imposition [*Per impositionem*] of Names, some of larger, some of stricter signification, we turn the reckoning of the consequences of things imagined in the mind, into a reckoning of the consequences of Appellations… (*Lev*. iv, 52: 23-25).

In *De Homine*:

> Speech or language is the connexion of names constituted by the will of men [to signify] the series of conceptions of the things about which we think. Therefore, as a name is to an idea or conception of a thing, so is speech to the discourse of the mind (*De Homine* x.1).[187]

And finally in *De Corpore*:

> How unconstant and fading men's thoughts are, and how much the recovery of them depends upon chance, there is none but knows by infallible experience in himself. For no man is able to remember quantities without sensible and present measures, nor colours without sensible and present patterns, nor number without the names of numbers disposed in order and learned by heart. So whatsoever a man has put together in his mind by ratiocination without such helps, will

[187] Wood, Scott-Craig, and Gert translate "*ad significandum*" as "to denote"; but this is an error, since Hobbes distinguishes the signification of a term from the objects of which a term is true. See Isabel C. Hungerland and George R. Vick, "Hobbes's Theory of Language, Speech, and Reasoning" introductory essay to *Computatio, sive, Logica*; see also A.P. Martinich, translator's commentary to *Computatio, sive, Logica*, 350-355.

presently slip from him, and not be revocable but by beginning his ratiocination anew. From which it follows, that, for the acquiring of philosophy, some sensible moniments are necessary, by which our past thoughts may be not only reduced, but also registered every one in its own order. These moniments I call MARKS, namely, sensible things taken at pleasure, that, by the sense of them, such thoughts may be recalled to our mind as are like those thoughts for which we took them (*De Corpore* ii.1).

A NAME *is a word* [vox] *taken at pleasure at pleasure to serve for a mark, which may raise in our mind a thought like to some thought we have before, and which being pronounced to others, may be to them a sign of what thought the speaker had, or had not before his mind* (*De Corpore* ii.4).[188]

…[O]f names, some are *common* to many things, as a *man*, *a tree*; others *proper* to one thing, as *he that writ the Iliad*, *Homer*, *this man*, *that man*. And a common name, being the name of many things severally taken, but not collectively of all together (as man is not the name of all mankind, but of every one, as of Peter, John, and the rest severally) is therefore called an *universal name*; and therefore this word *universal* is never the name of any thing existent in nature, nor of any idea or phantasm formed in the mind, but always the name of some word or name; so that when *a living creature*, *a stone*, *a spirit*, or any other thing, is said to be

[188] There is some controversy surrounding the adequacy of this translation. Isabel Hungerland and George Vick, argue that it obscures the "definitional connection" between speech and the intention to communicate. See "Hobbes's Theory of Speech, Language, and Reasoning," 32-38. See also Isabel Hungerland and George Vick, "Hobbes's Theory of Signification" *Journal of the History of Philosophy* 11 (1973): 459-482. For a criticism of Hungerland and Vick's position and translation see George MacDonald Ross "Hobbes's Two Theories of Meaning" in Andrew Benjamin, Geoffrey Cantor, and John R.R. Christie, eds., *The Figural and the Literal* (Manchester: Manchester University Press, 1987), 31-57.

> *universal*, it was not to be understood, that any man, stone, &c. ever was or can be universal, but only that these words, *living creature, stone*, &c. are *universal names*, that is, names common to many things; and the conceptions answering to them in our mind, are the images and phantasms of several living creatures, or other things (*De Corpore* ii.9).

I have selected these passages to make a point about Hobbes's nominalism. These passages agree on the following points. First, names are imposed upon things for the sake of recalling conceptions of things. As Hobbes puts it in *Leviathan*, the "first use of names, is to serve for *Markes*, or *Notes* of remembrance." The idea seems to be that the use of names allows the language-user to overcome a natural shortcoming of the non-linguistic mind—the frailty of the memory. As we saw in chapter 3, the conceptions in the memory are "fading"—becoming informationally impoverished—and hence, as time goes on, they become less reliable representations of their objects. Although *Anti-White* and *Human Nature* do not highlight this, from the discussion in *Leviathan* and *De Corpore*, Hobbes apparently has in mind the idea that the use of names is especially helpful for aiding the natural faculty of reasoning. The conceptions are "unconstant and fading" and so whatever someone has "put together" (i.e. "collected" and "compounded") in his mind "by ratiocination without such helps" will fade away and cannot be recalled without going back over the same train of thoughts once more. This the problem that, as we saw in chapter 4, beset the "un-worded" geometer: without words a person can come to discover that the interior angles of a triangle are equivalent to the sum of two right angles, but cannot recognize that that property holds of another triangle of a different shape, without "new labour" (*Lev*. iv, 52: 30-33 and 54: 1-11; also *De Corpore* vi.11).

Words in propositions record the *consequences* of thoughts (which represent extra-mental bodies and their properties). That is one reason why the example follows on the heels of Hobbes's claim in *Leviathan* iv, 52:23-25 that by the imposition of names, "some of larger, some of stricter signification, we turn the reckoning of the consequences of things imagined in the mind, into a reckoning of the consequences of Appellations." The point is that a person trying to reason about geometric figures with only the non-worded, natural cognitive capacities at their disposal, cannot achieve any demonstrative certainty and universal knowledge—in other words, the wordless person can discover geometric properties, but lacks the science of *geometry*. But I note once again that the story Hobbes is telling here clearly presupposes that non-linguistic thinking is real thinking and a kind of reasoning. The addition of language does not make it *thought*, but it makes the thought *universal*. Words allow us to have certainty that what we find true "*here*, and *now*, to be true in *all times* and *places*" (*Lev*. iv, 54: 10-11).

This point brings me to the second. Names are imposed for the sake of raising not just conceptions of bodies, but conceptions *for the sake of some accident* (or *accidents*) of the bodies upon which the name is imposed. As he put it in *Leviathan*: "One Universall name is imposed on many things, *for their similitude in some quality, or other accident*" (iv, 52: 11-12; my emphasis). So, for instance, we impose 'man' on the individual humans to recall conceptions of humans *qua* their humanity: their being *rational*, *animate*, *bodies*. As I pointed out in the last chapter, the natural mind is able to "compute" without words by compounding "parcells" in the imagination. The example Hobbes gave at *De Corpore* i.3 of the "ratiocination" of the conception of a man was supposed to illustrate that point and there he very clearly connected the "order and

connection" of the ideas in the compounded imagination to the "order and connection" of the names in speech. The conception of an individual man is compounded from the ideas of the man *qua* body, *qua* animate, and *qua* rational: a conception of a *rational*, *animate*, *body*. That is why Hobbes claims there that "when, by looking fully and distinctly" upon the body which is conceived as a *rational*, *animate*, *body*, the conception one now has "is compounded of his former ideas, which are put together in the same order in which these three single names, *body*, *animated*, *rational*, are in speech compounded into one name, *body-animated-rational*, or *man*." (*De Corpore* i.3; cf. *De Corpore* iv.8). I do not wish to go too far into the specifics of Hobbes's philosophy of language here, but what is clear is that the order of the names in speech is supposed to reflect the order of conceptions—as they are "ratiocinated"—and that the names we impose upon things are imposed to bring to mind the conceptions of the accidents of the things that fall in the extension of the names. Therefore, Hobbes's account of names, as marks for the sake of thought, appears one the face of it to presuppose that the natural mind is capable of the conscious apprehension of the accidents of a body. The phantasms of sense are the "notice" and "knowledge" we have of the accidents of bodies that "make us" discriminate them from one another: "*effects* and the *appearances* of things to the sense, are faculties or powers of bodies, which make us distinguish them from one another; that is to say, conceive one body to be equal or unequal, like or unlike to another body" (*De Corpore* i.4).[189] We can,

[189] The English translation might be misleading—the idea that appearances *are* the powers of bodies does not sound like Hobbes's considered opinion, which seems to have been rather that the bodies have powers and the powers cause the appearances, which are conceptions in perceivers (see my discussion in chapters 1 and 2). The Latin could be expressing the idea that phenomena (i.e. phantasms) are not *identical* with a power of a body, but are the *effect of* a body's power on the senses: *Effectus autem et phænomena sunt, corporum facultates sive potentiæ quibus alia ab aliis distinguimus…* ("Effects and phenomena *are found in* the faculties of bodies or powers by which they make us distinguish them"). My thanks to Michael Augustin for his help on this point.

moreover, can remember these accidents. It is on this basis that we impose names upon things. I give the name 'white' to a thing for the sake of *that* accident: its whiteness, of which I have a certain white color-phantasm.

The third point I wish to make is that not only are names imposed upon things for the sake of their accidents and qualities, but upon many different things that resemble one another in respect of their accidents and qualities. The example Hobbes gives in *Anti-White* is explicit and clear: "All things that in any way resemble one another have a certain single name" and so, for example, all of the white things—things that resemble one another "as regards colour"—will receive the name 'white.' And in so-doing, each name is capable of "recalling" any one of the many bodies similar to one another in respect of those particular accidents and qualities. Noticing that each white thing resembles the others in respect of color, if the name 'white' is applied to any one of them for its color, "all the remainder will be said to be white." (*Anti-White* xxx.16 fol.346). Again I draw attention to the *Leviathan* account: "One Universall name is imposed on many things, *for their similitude in some quality*, *or other accident*" (*Lev*. iv, 52: 11-12; my emphasis). So not only are names assigned to object for the sake of remembering their accidents and qualities—so that the objects have accidents and qualities, which we notice and remember by our conceptions (albeit with limitations)—but the natural, non-worded mind is also capable of noticing and remembering *similarities* between objects with respect to these accidents. These passages strongly imply, for example, that an organism without the use or understanding of a language can notice and remember the whiteness of an object and that it can notice and recognize a bunch of other white things by being aware of their similarity to one another with respect to their color. *That* certainly

sounds like a pre-linguistic ability to classify in at least a rudimentary sense: it sounds like an ability to recognize white things and to distinguish them from red things by color.

The final point I would like to make is that, although it does not come out very clearly in all the above-quoted texts (e.g. the *Anti-White* texts), Hobbes makes a distinction between on the one hand, that *upon which* a name is imposed and, on the other, the *conceptions for which* the name is imposed. For example, I impose the name "man" on Peter, Paul, Luke, and Ringo, and all the rest of the human beings "that ever were, or shall be" but I do so for the sake of the conception of their *humanity*—their "similitude" with respect to certain accidents. Moreover, the use of a name in an uttered proposition is to *signify* those conceptions and to *signify* their order and connection by the order and connection of the names in the proposition. Universal names, it seems, name each individual object in their extension, but signify the conceptions in virtue of which the name is imposed. So, again, "man" is imposed on all the humans. In a proposition it would signify the conception of *humanity*. There is considerable debate over exactly what linguistic signification is supposed to be, but I will not enter into that debate here, as Hobbes's general definition of signs is more pertinent to the present topic.[190]

[190] For the view that Hobbes inconsistently shifts between the view that signification is reference and the view that names signify conceptions see Stewart Duncan "Hobbes Signification and Insignificant Names;" see also J.S. Mill, *A System of Logic*, 8th ed. (New York and London, Harper and Brothers, 1900), 29-30. For the view that Hobbes makes a "Fregean" sense/reference distinction see Martinich, commentary to *Computatio, sive, Logcia*, 350-355 and Martinich *Hobbes*, 144-145; for a related view that interprets him as a Gricean see Isabel Hungerland and George Vick, "Hobbes's Theory Language, Speech, and Reasoning," introductory essay to *Computatio, sive, Logica*. For the view that he eschews a semantic theory giving instead a theory of "pragmatics" see Anat Biletzki, *Talking Wolves: Hobbes on the Politics of Language and the Language of Politics* (Dordrecht: Springer, 1997). For a "Kripkean" causal theory of reference interpretation see Deborah Hansen Soles, *Strong Wits*, Ch. 4; see also Donald Hanson "Rethinking Hobbes's Conventionalism" *Review of Politics* 53 (1991): 627-651 and also Murphy, *Philosophy of Positive Law*, 136-141.

I am certainly not the first person to make these observations. There has been and continues to be some disagreement about the nature and the coherence of his nominalism, especially as it relates to "signification." While I will not argue the for the claim that Hobbes's nominalism is a consistent metaphysical position, I do believe that much of the confusion surrounding Hobbes's views on the relationship between mind and language stems from confusions about his nominalism. This is not the place to examine this debate thoroughly, but a brief look at one particular worry that stems from his nominalism will help illuminate something that I believe is relevant to the conclusions I wish to establish in this chapter.

I mentioned in chapters 3 and 4 that on his "made with words" interpretation, Pettit claims that while the nonhuman, non-linguistic mind is incapable of active, classificatory thought (real thought)—and so it cannot consciously notice that two particulars resemble one another in, say, respect of color—it can nevertheless "unconsciously register" these similarities. Ignoring the point that Hobbes never says anything like this, why does Pettit feel the dialectical pressure to propose this view? It is to extricate Hobbes from a vicious circle. The "enormous leap associated …with the appearance of words," is that names in make "general, classificatory thought possible."[191] The "made with words" interpretation holds that, in the absence of language, there is no general, classificatory thought; only the introduction of universal names makes such thinking possible. "Yet," Pettit notes, "the story is problematic in one salient respect":

[191]Pettit, *Made with Words*, 33

> It is exposed to an obvious objection of circularity. If access to words, in particular to common names, has a truly transformative effect on natural minds, then prior to that access, natural minds must not be aware of the general aspects of things by virtue of which they can be assigned to different classes. But if they are not aware of the general aspects of things, then it is not clear how they can learn the use of general words. …
>
> The problem can be stated as a dilemma. Either people are independently aware of the general aspects of things that cue their use of words or they are not. If they are aware of such general aspects, then the mastery of words is not necessary for classificatory thought. If they are not aware of those aspects, then the mastery of words is impossible.[192]

The objection is straightforward: how can we get the practice of universal name-use off of the ground at all, if there is no way to think about diverse particular objects under a general aspect? That is, in order to know that *that F* is 'an *F*,' I must already be able to recognize it *as an F*—a member of a class of *F*-things, unified by their common property of *F*-ness.

Pettit argues that this circularity objection only holds "on the assumption that in order to be primed by this or that aspect of something into applying a certain name, I must be aware of that aspect as such."[193] Pettit proposes then that we should understand Hobbes as holding that the "priming effect" that the aspects of things have upon us is unconscious. "It is quite natural," he contends, "to read Hobbes in a way that allows for

[192]Pettit, *Made with Words*, 33; cf. Johnathan Bennett, *Locke, Berkeley, Hume: Central Themes*, 11-21.
[193]Pettit, *Made with Words*, 33-34.

the subliminal priming of words" by the accidents and attributes of bodies by which they effect the senses.[194] Hobbes says that we impose names on many distinct particulars for the sake of some attribute:

> But for all [Hobbes] adds, we may do this without being aware of the different effects or considerations by virtue of which we apply the various names to that one thing. Equally, we confer the same name on different things, but for all he says, we may do this without any sense of the common effects or considerations on the basis of which we apply the same name to all those entities.[195]

This is not a very compelling argument. I suppose Hobbes never *explicitly* says that we *do not* register the attributes and accidents of things subconsciously; however, names are given to objects for the sake of *conceptions*, which are the representations of bodies and their accidents. While we are not consciously aware of the *real* quality in the bodies themselves by which the phantasms of sense are wrought in our brains, we *are* aware of the phantasms they generate.[196] As I showed in chapter 2, a phantasm of sense simply is our conscious notice and knowledge of a body and its qualities. Conceptions are the representations of these and, as I argue below, there is good reason to think of them as "access" conscious representations—they are mental representations, stored in the memory, which an organism can access and deploy in guiding behavior and making inferences.

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[194]Pettit, *Made with Words*, 34.
[195]Pettit, *Made with Words*, 34.
[196]E.g. "When you look at something you call 'white', you impose that name on a substance, or an underlying body, such as marble, even though your eyesight cannot penetrate to the substance of the marble or of any other entity whatsoever" (*Lev.*, Latin Appendix, i, 1170: 17-20).

Besides which, it is not clear how the positing of an unconscious awareness of "general aspects" is supposed to solve this dilemma. If my inability to consciously notice the "general aspects" before language so severely limited my ability to think and classify things, why does it help that I "register them" unconsciously? How do I get from the unconscious "registering" to the conscious, deliberate labelling and classifying, if I cannot have conscious access to the "general aspects" of things *until after* I have learned how to use words?

But I think Pettit's argument shows a kind of confusion about Hobbes's nominalism that is fairly common. This is the mistake of thinking that, following J.W.N. Watkins's influential discussion, Hobbes's acceptance of "accidents" and "properties" is inconsistent with his avowal of an (apparently) "radical" nominalism.[197] Pettit couches the objection as a dilemma arising from the "made with words" thesis, which assumes nominalism, and the claim that Hobbes admits that there are "general aspects" of things, because he says that we give common names to many distinct particulars in virtue of their "similitude" in some accident or other. But that argument rests on the assumption that an admission of resemblances between objects in respect of their accidents and properties, such as, e.g., all the red things resembling in their "redness," implies that these accidents and properties are real *common* natures.[198] This is not a good assumption, however, since

[197] See J.W.N. Watkins *Hobbes's System of Ideas*, 104-109. Watkins takes Hobbes's nominalism to be "radical" because of a misunderstanding of Hobbes's theory of truth. See also Fredrick Scott, "An Inconsistency in Hobbes's Nominalism?," *Modern Schoolman: A Quarterly Journal of Philosophy* 44 (1967): 243-244 and Stephen Finn, "Names and Universals" in S.A. Lloyd, ed. *The Bloomsbury Companion to Hobbes* (London: Bloomsbury Academic, 2012), 104-105.

[198] Cf. J.W.N. Watkins: "I can see no escape from the conclusion that his statement that some names are names of accidents is inconsistent with this statement that there is nothing universal in the world but names, everything named being individual and singular" (*Hobbes's System of Ideas*, 107); see also Stephen Finn "Names and Universals," 104.

a nominalist may happily allow that there are properties and accidents, so long as these are understood to be themselves *individual* and *particular* and not a *common property* shared by many distinct particulars—there are many *rednesses* and each red thing has its own *redness*. Admitting that two red things resemble in respect of their (respective) rednesses is only a problematic position for the nominalist if the similarity relation has to be grounded in some kind of real, extra-mental common unity; perhaps it does, but the nominalist will be within his rights to ask for an argument.[199] In any case, the view I have just sketched is what we would call a "trope" nominalism. I think it is very likely that Hobbes had a view like this in mind, but I will not argue the point here (except to point out that scholastic nominalists were no strangers to the view).[200] However, since there are real live metaphysical options for the nominalist, a nominalist cannot be accused of an inconsistency *merely* on the grounds that they accept the existence of accidents and properties and hold that the individual, concrete particulars of the world can be grouped by similarities with respect to their accidents. "General thoughts" are not at all required for "classificatory thinking"—that is just the nominalist's position.

But there is a simpler point to be made here. The vicious circle Pettit tries to help Hobbes avoid is a circle entirely of Pettit's making and the "made with words" thesis is at fault here. To switch metaphors, Hobbes simply jumps on one horn of the (alleged)

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[199] See Marilyn McCord Adams, *William Ockham*, vol.1, (Notre Dame, IN: University of Notre Dame Press, 1987), 109-121.

[200] I interpret Hobbes as holding a "substance-attribute" trope theory (rather than a "bundle" theory), for it seems to fit with his discussion of accidents at *De Corpore* viii.2. For a detailed discussion of Hobbes's nominalist metaphysics that tries to orient his view with respect to the nominalism/realism debate in contemporary metaphysics see G.K. Callaghan, "Nominalism, Abstraction, and Generality in Hobbes," *History of Philosophy Quarterly*, 18 (2001): 37-55. For an introduction to "trope" nominalism (and other varieties) see David Armstrong *Universals: An Opinionated Introduction* (Boulder, CO: Westview Press, 1989). On Ockham's ontology and nominalism see Marilyn McCord-Adams, *William Ockham*, vol.1, 3-287.

dilemma. Reading "general aspects" in Pettit's formula as "similitude in some quality, or other accident," Hobbes accepts the conditional that: if nonlinguistic humans are "aware of such general aspects, then the mastery of words is not necessary for classificatory thought." Very true: if the natural, nonlinguistic mind can notice and remember some "similitude in some quality, or other accident" between many distinct individual objects, then it is capable of grouping and classifying those objects together on that basis, without the use of universal names. "General thoughts" are not needed for "classificatory thinking." What I argue in this chapter is that *signification* essentially involves just such a natural ability.

2. Understanding and Signification

In this section I want to look briefly at "the understanding" and at Hobbes's reduction of the understanding to an activity or power of the imagination and at its relation to "signification." Examining this relation will allow us to obviate the need to enter into a full discussion of Hobbes's theory of language. An important feature of Hobbes's anti-scholastic naturalism—perhaps the central feature—is his rejection of the scholastic "faculty psychology" and the reduction of the cognitive faculties to the imagination. For example, after his discussion of sense and imagination in *Leviathan* chapter ii, he complains that:

> [s]ome say the Senses receive the Species of things, and deliver them to the Common-sense; and the Common Sense delivers them over to the Fancy, and the Fancy to the Memory, and the Memory to the Judgement, like handing of things

> from one to another, with many words making nothing understood (*Lev*. ii, 36: 7-11).

Obviously this is largely a rhetorical flourish, but it is illustrative as an expression of Hobbes's general contention that all cognitive powers can be explained in terms of the operations of the imagination—a faculty that stores and recollects conceptions derived from the senses. As we saw him urge against Bramhall in the *Questions Concerning Liberty, Necessity, and Chance*, Hobbes's empiricist psychological theory reduces all of the cognitive faculties to the faculty of imagination: "consideration, understanding, reason, and all the passions of the mind, are imaginations … to consider a thing is to imagine it; …to understand a thing, is to imagine it;…[etc.]" (*QCLNC* "Animadversions" xxvi, *EW* v: 358-59). The imagination is a faculty which (as I pointed out in chapter 1) was widely agreed to be a perfectly material faculty of the body.

Of particular interest is the claim that "to understand" a thing is "to imagine it." The "made with words" interpretation is the weight some of these commentators put on Hobbes's naturalistic reduction of the cognitive faculties to the imagination. As we saw in chapter 4, one of the premises of Philip Pettit's "master argument" for the "made with words" thesis is the claim that "[t]he only plausible, naturalistic explanation, and so the only explanation that would have made sense for Hobbes" of "transformative speech" is that it is a human invention. And the human ability to thinking classificatory thoughts—to understand universals—must derive from language. Gordon Hull, for example has argued in defense of his "made with words" thesis, "Hobbes concludes that thought itself is inseparable from naming" and that "as [his] reduction of the intellect to imagination implies, thinking is linguistic from top to bottom; language is not something added later

to express thought."[201] Hull accepts this view, in part, because he accepts the "radical" nominalist interpretation I outlined in the last section. Hull takes, for example, Hobbes's argument in the "Third Set of Objections," that since "all we can infer" from reasoning "is whether or not we are combining the names of things in accordance with the arbitrary conventions which we have laid down in respect of their meaning," it will follow that "reasoning will depend on names, names will depend on the imagination, and imagination will depend (as I believe it does) merely on the motions of our bodily organs" (AT VII: 178; CSM II: 125-26). Hull sees this argument as evidence that, according to Hobbes, the intellect—our reasoning faculty—reduces to the imagination and the use of names, so since reasoning tells us only about the "conventions of meaning" "language refers fundamentally to itself"[202] and so all the active, classificatory thinking is "linguistic from top to bottom."

As I pointed out in the introduction, there is a very good reason for Hull to focus on the reduction of the imagination to the intellect and he is absolutely correct that Hobbes's psychological theory involves this reductive claim, though he draws the wrong conclusion. Hull draws the wrong conclusion partly because he assumes Hobbes holds a "radical" nominalism, in the sense outlined above. But he also draws the wrong conclusion because he is assuming the truth of the major premise of the "made with words" master argument—only those who can speak can think in the properly active, classificatory way. This assumption blinds the "made with words" interpreters to the lesson Hobbes actually wants us to draw from the reduction of the intellect to

[201] Gordon Hull, "Meaning," 101.
[202] "Hobbes's Radical Nominalism," 210.

imagination. To see this, it is necessary to say a few words about the scholastic notion of "understanding" to which Hobbes is reacting.

One very important bone of contention (as I pointed out in chapter 1) between Hobbes and his scholastic adversaries, is whether the operations of this faculty are sufficient to explain the wide range of cognitive activity of which fully mature human beings are capable. The scholastics thought not. The faculty of the intellect or the understanding (*intellectus*) in particular was of great importance to the scholastic theories of mind and epistemology. The scholastics disagreed on the specifics, but for our purposes it is enough to characterize in a general way the faculty of the intellect taking the influential Thomist account as paradigmatic.[203] The intellect (strictly, the "agent intellect") is essentially a concept-forming faculty of the mind. In Aquinas's theory the intellect is a faculty for understanding material bodies. In his account of concept-formation, the imagination receives "phantasms" (*phantasia*) of material bodies external to the mind from the senses. The intellect then "strips" away the universal form received into the imagination in the phantasms of sense: it "turns the potentially thinkable data of sense-experience into the actually thinkable species."[204] A concept—of a natural kind, for example—is formed when the intellect grasps this form or nature and in virtue of this

[203] I am simplifying, but the simplification is harmless insofar as my goal here is to illuminate Hobbes's views; though Hobbes is fairly knowledgeable of the scholastic tradition, he tended to paint the scholastics with a very broad brush (as did most early modern "natural philosophers"). See Cees Leijenhorst *Mechanization of Aristotle*, Ch. 2. For a discussion of the differences between various scholastic theories of the intellect see John F. Boler, "Intuitive and Abstractive Cognition" in *The Cambridge History of Later Medieval Philosophy*, eds. Norman Kretzmann, Anthony Kenny, Jan Pinborg, Eleonore Stump, (Cambridge: Cambridge University Press, 1982), 460-478. My discussion of Aquinas's notion of the intellect and its operation draws on the discussion in Z. Kuksewicz "The Potential and the Agent Intellect" in *The Cambridge History of Later Medieval Philosophy*, eds. Norman Kretzmann, et al., (Cambridge: Cambridge University Press, 1982) 595-602 and also Anthony Kenny, *A New History of Philosophy*, vol. 2, *Medieval Philosophy* (Oxford: Clarendon Press, 2005), 163-166.
[204] Anthony Kenny *A New History*, 165.

concept in the intellect, the mind is able to distinguish and classify objects. The intellect is that faculty by which we are able to *think about* the material bodies with which we come into perceptual contact. Without the intellect's operation upon the phantasms of sense, there is no *thought*.

Thomas Aquinas was a realist in the scholastic Aristotelian sense that he held the intelligible species to be real, common natures that formed part of the metaphysical constituents of the hylomorphic compounds—the sensible, material objects of the natural world—that are the proper objects of human cognition.[205] But the intellect, as a faculty of concept-formation, was a feature also of nominalist scholastic epistemology—the relevant difference for our purposes is that whereas the realist believed that the intellect's operation on the phantasms of sense yielded a cognition of the real, common nature external to the mind, the nominalist held that since there are no common natures *ex parte rei*, universal concepts are instead in some sense the *product* of the intellect.[206] For Ockham, a universal just is a naturally significant sign, a term in a "mental proposition"—a naturally significant sign in the mental proposition a concept.[207] Signs in Ockham's mental propositions are derived by the intellect's "abstracting" from the "intuitive cognition" of sensible particulars.[208] I will return to the Ockhamist account of universal concepts in a later section, but the important point for now is that, whatever the

[205] Anthony Kenny, *A New History*, 165.
[206] Marylin McCord Adams, *William Ockham*, vol. 1, 71-109; Again, for a more detailed account of the specific differences between the Thomists and Scotus and Ockham on the operation of the intellect see Boler, "Intuitive and abstractive cognition," 460-478.
[207] This would be a further difference between the paradigmatic account I sketched above and Ockham's view. On the Thomistic paradigm, signs make us grasp a concept of an object. The sign and the object are thus mediated by an intervening concept (hence the temptation to see signification just a medieval version of Frege's *Sinne*; see Martinich, *Hobbes*, 144-145). But signs in Ockham's mental propositions *just are* concepts (Marilyn McCord Adams "Ockham's Theory of Natural Signification," *The Monist*, 61 (1978): 444-459).
[208]For an overview see Marilyn McCord Adams, *William Ockham*, vol. 1, 495-525

details, for the scholastics, the intellect is the faculty by which concepts are formed (whether these correspond to real common natures or are the work of the intellect itself), it forms concepts by interacting in one way or another with the phantasms in the imagination, and it is an immaterial, rational faculty. The faculty of the intellect is, again, what makes human thought, *genuine* thinking.

We saw glimpses of this kind of scholastic position already in the passages I examined from the *Questions Concerning Liberty, Necessity, and Chance* in chapters 3 and 4. Bramhall had objected to Hobbes's defense of compatibilism on the grounds that (among other reasons) his compatibilism would make deliberation—and, I add, thought generally—a power of the imagination. Hence, Bramhall complained that, if Hobbes is right, then animals can judge and deliberate—in short, they can think. But they cannot think, Bramhall says, for "[w]hen brute creatures do learn … it is not out of judgment or deliberation or discourse, by inferring or concluding one thing from another, which they are not capable of" (*QCLNC*, "Bishop's Reply," xiv *EW* v: 173-174). Why is it that animals cannot deliberate, according to Bramhall? Animal imagination and action is necessitated by material causes, but human deliberation is free and is an "inquiry made by reason" (*QCLNC*, "Bishop's Reply," xxvi *EW* v: 385). Bramhall is not thinking, primarily, about the intellect's concept forming capacities here—that is just not directly relevant to his debate with Hobbes—but his comment that animals cannot "judge" and do not "discourse" and "infer" shows that he is operating within this general scholastic framework. Human thinking is radically different from nonhuman animal thinking—nonhuman animals sense and imagine and have passions, but they do not possess concepts and cannot "judge," or "infer," for they lack a faculty of the intellect.

I single out this exchange with Bramhall for comment once again because I think that it shows that there is a serious problem with the way the "made with words" interpretations tend to characterize Hobbes's views on the relationship between nonhuman animal and non-worded human cognition. I have made this point already in chapter 4, but it is worth repeating here. Pettit is explicit—it is plausible that animals cannot really think, because they cannot speak. But in addition to the worry that this view simply enshrines scholastic chauvinism—for which Hobbes expresses much antipathy—in the form of an implausible assumption, it gets the relationship between the understanding and signification wrong. The relationship between the understanding and a sign is, primarily, psychological. The "made with words" thesis cannot make sense of Hobbes's reduction of the understanding or intellect to the faculty of the imagination, for it robs Hobbes's reduced faculty of the understanding of one of its primary duties. If the "made with words" thesis is correct, Hobbes cannot claim that the faculty of the imagination is adequate to fulfill all the cognitive obligations to which the understanding is supposed to answer. Despite the expressed motive of keeping Hobbes true to his "radial" nominalism, the "made with words" thesis cannot make sense of the role the understanding plays in *signification* and the understanding of universal names. I want to turn now to briefly examine the history of the notion of "signification" and "sign-inference." There are two threads to this story, which I believe Hobbes weaves together to effect his reduction of the intellection. One is the scholastic notion of "signification" and its relation to the faculty of "understanding," outlined above; the other is the Hellenistic, and particularly Epicurean, notion of a sign-inference.

According to the scholastic theory, signification (*significare*) is kind of "psycho-causal property."[209] A sign is said to signify "that of which it makes a person think."[210] The definition of the signification of words given by Boethius was the touchstone for the scholastic notion: "[Verbs] spoken in isolation are names and signify something. For he who speaks [them] establishes an understanding."[211] Augustine gives a similar definition.[212] This definition derives from and builds upon Aristotle's discussion of language and linguistic signs in *De Interpretatione*, in which he comments:

> Spoken words are the symbols of mental experiences and written words are the symbols of spoken words. Just as all men have not the same writing, so all men have not the same speech sounds, but the mental experiences, which these directly symbolize [i.e. that of which words are signs], are the same for all, as also are those things of which our experiences are the images.[213]

So a sign, following Boethius, was said to "establish an understanding" of the thing it signifies. In other words, the sign causes or determines an *act of the understanding* or *intellection*. Signification (*significare*) is just this causal relation: the signification of a sign is just that which the sign makes us "intellect" or understand. In general, then, since the understanding is the faculty by which we form concepts, on the scholastic notion of *significare*, signification causes us to form *concepts* of the thing signified.[214] Thomas

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[209] Paul V. Spade, "The Semantics of Terms" in *The Cambridge History of Later Medieval Philosophy*, eds. Norman Kretzmann, et al., (Cambridge: Cambridge University Press, 1982), 152.
[210]Spade, "The Semantics of Terms," 152.
[211]*De Interpretatione* 3,16b19. Quoted in Spade "The Semantics of Terms", p.152.
[212]R. A. Markus "St. Augustine on Signs," *Phronesis*, 2 (1957): 60-83.
[213] *On Interpretation*, trans. E.M. Edghill, in *The Basic Works of Aristotle*, ed. Richard McKeon, (New York: Random House, 1941; Modern Library paperback ed. 2001), 40.
[214]This is not strictly true, since it seems Ockham denies it as a natural sign *is* a concept on his view. See Marilyn McCord Adams, "Ockham's Theory of Natural Signification."

Aquinas writes, for example: "Signification is properly so-called with respect to the idea of the name" [215] and that "[since] according to the Philosopher, words are signs of ideas, and ideas the likeness of things, it is evident that words relate to the meaning of things signified through the medium of the intellectual conception."[216]

Although Boethius and Augustine—and the scholastics that followed them—focus on the signification of *words*, the definition applied broadly to not only linguistic, or conventional signs, but also to natural signs. For example, in his discussion of the semantics of terms, Ockham feels that he must *narrow* the definition of "signification" so that it *only* applies to conventional signs and to specifically linguistic meaning:

> For the sake of quibblers, however, it should be noted that 'sign' can assume two meanings. In one sense it means anything which, when apprehended, makes us know [*cognitionem*] something else; but it does not make us know for the first time…; it only makes us know something actually which we already know habitually. In this manner, a word is a natural sign, and indeed any effect is a sign at least of its cause. And in this way a barrel-loop signifies wine in the inn. Here, however, I am not speaking of 'sign' in such a general meaning. In another sense, 'sign' means that which makes us know something else, and either is able to stand for itself, or can be added in a proposition to what is able to stand for something.[217]

[215] *Sententiarum* III.6.1.3c. Quoted in Martinich, translator's commentary to *Compuatio, sive, Logica*, 354.
[216] *Summa theologiae* I.13.1c.
[217] *Summa totis logicae*, I.c.i, in *Ockham: Philosophical Writings*, ed. and trans. Philotheus Boehner, (Indianapolis: Hackett, 1990), 49.

Notice that even though Ockham is trying to define a strictly linguistic or conventional sense of signification, he still works in the point that the sign has a kind of causal power: it makes things known. A sign, in the general sense, is that which "makes known" something else. Furthermore, the point that signs—including conventional signs—do not "make us know" for the first time, but rather "make us know actually" what we know "habitually."

The definition of a sign as that which "makes known" something else actually, which was a somewhat known "habitually," is a reflection of the common source for both Boethius and Augustine and, hence, for Ockham too—Aristotle's definition of signs. In *Prior Analytics*, for example, Aristotle comments that: "for anything such that when it is another thing is, or when it has come into being the other has come into being before or after, is a sign of the other's being or having come into being."[218] This Aristotelian notion of a sign—something such that its existence involves the existence of another thing at the same time or at another time—also set the terms of the debate between the Hellenistic schools (particularly between the Stoics and Epicureans) over the nature of the signs and sign-inferences.[219] Epicureans and Stoics generally agreed that signs supported inferences from the "clear" or "apparent" (πρόδηλον) to the "unclear" or "non-apparent" (ἄδηλος).[220] Sextus Empiricus's general definition will suffice:

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[218] *Prior Analytics* II.27.70a6-8, trans. A.J. Jenkinson in *The Basic Works of Aristotle*, ed. Richard McKeon, (New York: Random House, 1941; Modern Library Paperback Edition, 2007), 105. See also *Rhetoric* I.1357.a32-b36, *Basic Works*, 1332-1333 on signs in inferences.
[219] R.A. Markus, "St. Augustine on Signs," *Phronesis* 2 (1957): 61. See also Walter Ott, *Locke's Philosophy of Language*, 13-21.
[220]See *PH* II.97-103.

> "Sign" then, is said in two ways, general and specific. In general it is what seems to reveal something; thus, we regularly call a sign what produces a renewal [i.e. a "reminder" or "recollection"] of the object that was observed together with it.[221]

The important point for the Hellenistic's understanding of a sign is that they are derived from experience and observation. The details of the debate and of differences between the schools need not detain us here, but the empiricist flavor of the Hellenistic notion of signs and signification was particularly pronounced (as one would expect) in the Epicureans. Sign-inferences are supposed to take the reasoner from the "clear" or "apparent" to the "unclear" and "non-apparent." The Epicureans, holding that sensation is always true, naturally claimed that sign-inferences should move from sensation and sense experience (which is clear and apparent) to the unobserved (which is unclear and non-apparent). As they understood the sign-inference, signs were established by association: repeated sense experiences of correlated events, objects, and properties underwrites and establishes an object as a sign and as ground for an inference to the significate.[222] These inferences are inductive inferences that trade on analogical reasoning. One is meant to infer from observations of properties and qualities of various items of a given kind to the qualities and properties of items of the same kind one has not observed (or, in the case of atoms, cannot observe).[223]

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[221] *M* VIII.143; see also *PH* II.97-103.

[222] See *M* VII.212-216. For a detailed analysis of Epicurean sign-inferences see Johnathan Barnes "Epicurean Signs," in *Oxford Studies in Ancient Philosophy*, Supplementary volume, eds. Julia Anas and Robert Grimm, (Oxford: Clarendon Press, 1988), 91-134; for a reply see A.A. Long "Reply to Johnathan Barnes, 'Epicurean Signs'" in *Oxford Studies in Ancient Philosophy*, 135-144.

[223] Johnathan Barnes, "Epicurean Signs," 97; see also Elizibeth Asmis "Epicurean Epistemology" in *The Cambridge Companion to Hellenistic Philosophy*, eds. Kempe Algra, Jonathan Barnes, Jaap Mansfeld, and Malcolm Schofield, (Cambridge: Cambridge University Press, 1999), 260-294. Cf. Walter Ott, *Locke's Philosophy of Language*, 13-21. Ott likewise emphasizes the Hellenistic origins of Hobbes's notion of signification, arguing that the Sextus's distinction between "indicative" and "recollective" signs (e.g. *PH*

With all of the foregoing in the background, I turn to Hobbes's discussions and definition of "understanding." I take these texts to illustrate Hobbes's reduction of the intellect and understanding to the imagination. Superficially, these passages appear to support the "made with words" thesis (and so Hull's argument that Hobbes's reduction of the understanding to the imagination shows that Hobbes holds that all thinking is linguistic) because they all claim that understanding is only of names, never of things. But the text does not sustain this argument. I begin again with *Anti-White.* Recall that in *Anti-White* Hobbes gives a point-by-point refutation of scholastic theologian Thomas White's book, *De Mundo*. The passage that follows comes in a wide-ranging chapter that covers everything from sense perception and language to deliberation and action. In this passage, Hobbes discusses the nature of "understanding" and its relation to universals:

> Next, we are said to understand universals only. 'A universal' is nothing but 'a name', because understanding is not of things themselves but of names, and of language consisting of names. So we are said to understand a name when, on hearing or reading it, we recall the mind-picture governing the [particular] name applied. We are said to understand a [philosophical] proposition when, on listening to it, we call to mind that its subject or antecedent name is contained in its predicate or consequent; or when we remember that the later name fits everything the first name does. In the same way, we are said to understand a

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II.97-101) is preserved in Hobbes's distinction between marks and signs (*Locke's Philosophy of Language*, 17-18). I concur with Ott's analysis in general, but Ott neglects the point that both the Stoics *and* the Epicureans had a notion of "indicative" signs—a sign that licenses the inference to the "unclear" from the "clear"—and that Hobbes's theory of signification reflects this Epicurean account, rather than the Stoic, as sign-inferences depend drawing analogies between the observed and the unobserved. Stoic signs, by contrast, are cast in propositional terms and insist on "the intervention of a conceptual intermediary between a sign and the thing signified," an intermediary the Epicurean theory dispenses with (Markus, "St. Augustine on Signs," 61).

> longish speech made up of propositions when we call to mind a succession of consequents derived from the very nature of [these] names, or we connect an order of words with an order of mind-pictures that have determined the choice of such names. …
>
> Now it is clear that all animals except man lack [the faculty of] intellect because they lack [the knowledge of] names and speech (*Anti-White* xxx.21, fol. 348).

Notice that although understanding is only of universals and that these are—in line with his nominalism—names in propositions, never the less, we *understand* a name when "on hearing or reading it" we have the right "mind-pictures." The conceptions in question, I take it, are those for the sake of which the name was imposed, that is, the conception of some accidents or qualities in virtue of which a number of particulars are similar to one another. Notice too that the way the understanding of the name happens is by *hearing* or *reading* the name. That makes it sound as if Hobbes is thinking that the understanding of a name is an imagination of the things upon which a name is imposed, *caused by* the hearing and reading. Inscriptions and utterances are, after all, physical and so have causal powers. Furthermore, as is the case with his definitions of reasoning and deliberation, it is not any faculty which understands, but the *organism* that understands in virtue of the imagination. A *person* understands a name when that person has conceptions upon reading or hearing a name. Finally I note that, in perfect accordance with his position of the imposition of names—they are imposed for the sake of some quality or other accident—a proposition is understood when one has the *right* conceptions, that is, the conceptions *that determined the choice of names*.

Turning next to the account of *Leviathan*, we see a similar definition—definitions, actually, for as he did in the case of "reason," Hobbes defines *two* notions of "understanding." One applies to both humans and nonhuman animals; the other to humans only:

> The Imagination that is raysed in man (or any other creature indued with the faculty of imagining) by words, or other voluntary signes, is that we generally call *Understanding* [*Intellectus*]; and is common to Man and Beast. For a dogge by custome will understand the call, or the rating of his Master; and so will many other Beasts. That Understanding which is peculiar to man, is the Understanding [*Intellectus*] not onely his will; but his conceptions and thoughts, by the sequell and contexture of the names of things into Affirmations, Negations, and other formes of Speech (*Lev*. ii, 36: 12-19).

This passage is the paragraph that immediately follows Hobbes's quick rebuff of the faculty psychology of "the Schooles" (*Lev*. ii, 36: 1-11, quoted above), right after he has explained the operations of the sense and imagination. Hobbes is identifying the faculty of understanding with a kind of imagination. It is a reductive claim: there is no faculty of "intellectus," there is only the imagination and what we call "understanding" is nothing but an operation of the imagination. It is imagination "raysed" by speech or other voluntary signs. I will come back to this point shortly. Hobbes defines that other kind of understanding this way:

> When a man upon the hearing of any Speech, hath those thoughts which the words of that Speech, and their connexion, were ordained and constituted to signifie; Then he is said to understand it: *Understanding* [*Intellectus*] being

> nothing else, but conception caused by Speech. And therefore if Speech be peculiar to man (as for ought I know it is,) then is Understanding peculiar to him also. And therefore of absurd and false affirmations, in case they be universal, there can be no Understanding (*Lev*. iv, 62: 1-7).

Here is the understanding "peculiar to man." Notice that both the understanding "common to Men and Beasts" and the understanding "peculiar" to humans is imagination—conceptions—caused by voluntary, conventional signs. Hobbes extends understanding to even the "Beasts." This, I take it, is yet another indication of his general naturalistic attitude. As we saw in the case of deliberation and reasoning, the nonhuman animals that lack language and competent language-using adult humans are able to engage in many of the same cognitive activities. And, importantly, it is by dint of the very same cognitive faculty: the imagination.

Where human beings and non-linguistic animals part company is—and this should be no surprise—with capacities depending on linguistic competency. The understanding "peculiar" to humans complements reasoning in the sense we intend when we "reckon it amongst the faculties": "*Reckoning* (that is, Adding and Substracting) of the Consequences of generall names agreed upon, for the *marking* and *signifying* of our thoughts" (*Lev*. v, 64: 27-29). In *Leviathan* iv Hobbes makes the very claims he made in *Anti-White* xxx.21. The faculty of understanding or "intellectus," reduces to an act of imagination and is not itself a separate faculty. But the understanding, as an operation of the imagination, nevertheless performs *the same functions* as the scholastic "*intellectus*." Otherwise, the obvious objection to Hobbes's view would be that Hobbes's philosophy of mind leave the cognitive faculties too impoverished and crude to do the tasks that we

know human minds are capable of. Thus, we see Hobbes attempting to fit the work of the scholastics' *intellectus* into the schedule of the imagination. What does the understanding do? It understands. That is, it grasps concepts, by which we are able to think. It also understands signs. Signs cause acts of understanding. That is, signs cause the understanding to form a concept of the significate—signs make us think about the signified. And what does Hobbes say the imagination does, when we are said to "understand"? We understand universal names when we have—and whereas in *Anti-White* it was an oblique suggestion, here Hobbes is very clear—conceptions *caused by speech*. Speech is voluntary sign. And according to the definitions of names (quoted above) names are marks of thought and they are also signs of thought. They signify the "order and connection" of thought by the "order and connection" of the words spoken or inscribed. Hobbes's reduction of the understanding to the imagination is not a claim that thinking *just is* "linguistic from top to bottom." Hobbes is taking the medieval theory of signification and *naturalizing* it.

On the scholastic view, signs signify by causing an act of understanding. They make the intellect "grasp" a concept of the significate. Hobbes never speaks of "concepts" and this makes sense—understanding a concept as a mental representation, an intellectual "grasp" of a form or "intelligible species," these would be just the sort of universal mental representations his nominalist and empiricist strictures would forbid—but he does have a theory of the mind that invokes mental representations. Conceptions, after all, are mental representations—they just are not really concepts. So although on Hobbes's view a name in a proposition cannot signify a *concept*, it can signify *a conception*. That is exactly what Hobbes is arguing in *Leviathan* iv, 62: 1-7: words

appended together in propositions signify (by their connection and order) the connection and order of conceptions and when one has the conceptions caused by speech, one understands the proposition. Whereas the scholastic view was that a sign makes one think of its object by the mediation of a concept, Hobbes's view is that a linguistic sign makes one *raise conceptions* of the thing upon which the name is imposed.

In *De Corpore*, again after his definition of "common names," makes a passing comment on the understanding. This passing comment is an explicit, but brief, reductive argument. Hobbes argues that since common names are universal by being names imposed on many particulars and since "the conceptions answering to them in our mind, are the images and phantasms of several living creatures, or other things" if follows that:

> [T]herefore, for the understanding of the extent of an universal name, we need no other faculty but that of our imagination, by which we remember that such names bring sometimes one thing, sometimes another, into our mind (*De Corpore* ii.9).

The imagination is all that is necessary to understanding a universal name because the signification of a universal name—that which it causes us to think—are nothing but particular conceptions of the sensible particulars and their accidents that we retain in the memory.

The picture that emerges from these texts of Hobbes's reduction of the intellect to the imagination is that "understanding" is a power of the imagination to raise conceptions, caused by the hearing or reading of words in propositions. The names connected in a proposition signify conceptions of the objects upon which the names have been imposed. Just as in the medieval scholastic account of the relationship between

signification and understanding, in Hobbes's version signification is also a "pscyho-causal" relation. A name, as a sign, causes an understanding of its significate. But in Hobbes's version of the relation, names are signs of conceptions, not *concepts*. Names cause us to raise conceptions. As he puts it in *De Corpore* (and notice that he takes a swipe at the medieval debates over the nature of "signification"):

> But seeing names ordered in speech (as is defined [at *De Corpore* ii.4] are signs of our conceptions, it is manifest they are not signs of the things themselves; for that the sound of this word *stone* should be the sign of a stone, cannot be understood in any sense but this, that he that hears it collects that he that pronounces it thinks of a stone. And, therefore, that disputation, whether names signify the matter or form, or something compounded of both, and other like subtleties of the *metaphysics*, is kept up by erring men, and such as understand not the words they dispute about (*De Corpore* ii.5).

I wish to leave complicated issues of philosophy of language out of this discussion, but I note that what is underpinning Hobbes's blunt confidence here is his naturalism and, in particular, his naturalistic theory of the *general* phenomena of signification and sign-inferences. Names cannot signify anything other than conceptions because there just is no other empirically respectable option. I turn to this general account of signs in the next two sections. But before I do that I want to make this final observation about the reduction of the understanding to the imagination. As we have seen, Hobbes is taking on the scholastic notion of signification as a "psycho-causal" relation. It is a relation between objects, signs, and the mind. Hobbes naturalizes the relation in part by making the mental act caused by the apprehension of a sign to be an act of the imagination, rather than the

immaterial, rational intellect. But that is only *part* of the story. If all that there were to understanding a name in a proposition is to have thoughts caused by the name in its "contexture" within the proposition, then Hobbes's account would be lacking. What is needed is some explanation of *how* this causal process works.

I have commented on the scholastic influence on Hobbes's notion of understanding and signification. But what I have yet to discuss are the aspects of Hobbes's view that resemble the Epicurean notion of signs and sign-inferences. The causal process by which signs come to "make us" raise conceptions is based on an empiricist, associationist theory of learning and sign-inferences. I look in some detail at Hobbes's theory in the next two section. What emerges is a picture of signs and signification that gives the lie to the "made with words" thesis. Hobbes's identification of the faculty of understanding with a power of the imagination entails that the faculty of understanding is simply an ability to use and understand names. But to understand a name is to raise conceptions in the imagination of the things that the name is imposed upon—that is what grasping the signification of names amounts to. Hobbes's notion of signification is a naturalized version of the scholastic account: the signification of a sign is just what it "makes" one think. Hobbes's account of understanding rests on a prior, more general theory of signs and signification.

The "made with words" interpretation is correct that the understanding does indeed reduce to the imagination on Hobbes's theory of the mind. But since understanding is a conception raised by signs, Hobbes's account of understanding presupposes his theory of signs and signification. As I pointed out above the scholastics viewed signification as a very general phenomenon and not a specifically linguistic

relation and so too does Hobbes view linguistic signification through the lens of his general theory of signs. But as I shall argue, according to Hobbes's theory of signs, signification is a naturally occurring relationship that depends solely on the natural, nonlinguistic powers of the mind. I call this the "semiotic" notion of signification: a sign causes the conception of what they signify by determining an appropriately conditioned interpreter to make a sign-inference. In the next section I argue that Hobbes held just such a "semiotic" theory of signification. On Hobbes's general theory of signification, the establishment of the "psycho-causal" relationship between a sign and the conceptions raised in the imagination of its significate is possible only because of powers that the "made with words" thesis claims the natural mind does not possess: the ability to recognize objects that resemble one another in respect of their attributes and the ability to reason about the future and the unobserved past. Understanding is a power of the imagination *only if* the "made with words" thesis is false.

3. Signs, Signification, and the "Interpreter Condition"

As I remarked above, Hobbes only ever gives one general characterization of signs and it remains consistent throughout his work. In this section and the next I develop the "semiotic" interpretation of signification. Here are Hobbes's statements of his definition of signs, in chronological order, beginning with his earliest formulation in Anti-White (ca. 1640), xxx.13, fol. 343:

> Now, some have observed and committed to memory a resemblance [occurring] within a sequence of events. Such persons call the antecedent of a consequence

and the consequence of an antecedent, ‘a sign’. To those who recall that things resembling the antecedent have always or nearly always followed those resembling the consequent, ‘a sign’ is both the antecedent of a consequent and the consequent of an antecedent. For example, a cloud is a sign of future rain, and for those who have found that the usual sequel to a cloud has been rain, rain is the ‘sign’ of a cloud that preceded it. In this way a conjecture of [what] both the future and the past [hold] is made only through signs.

From this it is gathered that, to those trained to see it, causes and effects are ‘signs’ reciprocally, owing to one thing’s following upon another.

Human Nature (ca. 1640; unauthorized pub. 1650) iv.9:

When a man hath so often observed like antecedents to be followed by like consequents, that whensoever he seeth the antecedent, he looketh again for the consequent; or when he seeth the consequent, maketh account there hath been the like antecedent; then he calleth both the antecedent and the consequent, signs of one another, as clouds are signs of rain to come, and rain of clouds past.

Leviathan iii, 46:10-18:

A Signe, is the Event Antecedent, of the Consequent; and contrarily, the Consequent of the Antecedent, when the like Consequences have been observed, before: And the oftner they have been observed, the lesse uncertain is the Signe. And therefore he that has most experience in any kind of businesse, has most Signes, whereby to guesse at the Future time; and consequently is the most prudent: And so much more prudent than he that is new in that kind of business,

> as not to be equalled by any advantage of naturall and extemporary wit: though perhaps young men think the contrary.

De Corpore (1655; anon. English trans. 1656) ii.2:

> Now, those things we call SIGNS are the antecedents of their consequents, and the consequents of their antecedents, as often as we observe them to go before or follow after in the same manner. For example, a thick cloud is a sign of rain to follow, and rain a sign that a cloud has gone before, for this reason only, that we seldom see clouds without the consequence of rain, nor rain at any time but when a cloud has gone before.

There are several points of concurrence between these statements of Hobbes's definition of signs. All of these texts show that according to Hobbes's definition of signs, there is an intimate connection between signs and cognition. Indeed, as I understand him, the most important point Hobbes wants his readers to take from the definition is that the sign-significate relationship—i.e. signification—is a triad consisting of the sign, the significate, and the sign-taker or interpreter of the sign. I call this the "interpreter condition": an ineliminable element of signification is an interpreting mind, whose cognitive processes mediate between sign and significate. Signs are, in an important sense, a product of the mind's interaction with the world.[224] In this section I argue for this thesis and examine Hobbes's account of the psychology of what I call "sign-inferences."

[224] My analysis here builds on Soles, *Strong Wits*, 55-58. Soles interprets Hobbes's account of signs as part of her broad functionalist interpretation of his theory of the mind. Soles and I concur with respect to Hobbes's view on the *cognitive* mental states. See chapter 2, above.

Sign and significate are, in some sense, observable phenomena (as we will see, Hobbes adopts a generous view of what counts as observable). Sign and significate are events that have been found in "constant conjunction" (to borrow a phrase) in experience. These patterns are found in perceptual experience and retained in the memory. The mind recalls these experiences and notices the pattern, i.e., that like "antecedents" are constantly followed by like "consequences." Although Hobbes does not explicitly invoke a type/token distinction here, I shall use the term to clarify what I think Hobbes is driving at in these definitions. The language of "antecedent" and "consequent" is meant to indicate a temporal sequence of events and their connection in experience. By calling one phenomena-type an "antecedent" of another, Hobbes is referring to the fact that tokens of this type are constantly observed to precede, and are remembered as preceding, tokens of the "consequent" type. That is, tokens of a given sign-type are regularly observed to precede the tokens of the significate-types. So, tokens of rain-events are found constantly preceded by cloud-event tokens—clouds have always been found to come first with the rain always following, not vice versa—and we say rain is the consequent of clouds.

Although the existence of a sign-significate relationship depends upon the repeated association of sign-phenomena with signified-phenomena, signification is not a matter of mere correlation or the simple fact that one event-type regularly follows another event-type.[225] According to Hobbes's definition the conscious, appropriately conditioned

[225] Contrary to what Ian Hacking, referring to *De Corpore* ii.2, suggests. Hacking claims that according to Hobbes "*A* signifies *B* when *A* regularly follows or precedes *B*" (*Why Does Language Matter to Philosophy?* (Cambridge: Cambridge University Press, 1975), 20). Although I take Hacking's point that "[o]nce we attend carefully to this definition of 'sign' it becomes very difficult to foist any theory of meaning on to Hobbes," (*Why Does Language Matter?*, 20) his misreading of the definition of signs leads him to foist upon Hobbes the implausible position that words signify thoughts because words "regularly follow or precede thoughts" (*Why Does Language Matter?*, 20). Hobbes's frequent complaints against the scholastics' insignificant jargon belies that claim.

observer, the interpreter of the sign, is an in-eliminable element in signification.[226] Hobbes intends the interpreter condition as a necessary condition, so there just is no signification, and no sign-significate relation, without the interpreter unto whom the sign signifies the significate. Hobbes does hold that correlation matters, but only insofar as that correlation induces in an observer a kind of habit of mind: the disposition to expect the significate upon sensory stimulation by the sign (and vice versa). Before they can be signs, correlated events must condition the expectations (and presumptions) of interpreters, for whom the correlated events serve signify one another. To be an interpreter of a sign is to stand in the right kind of cognitive position with respect to the sign. The sign must play a certain role in the activity of cognition. A little reflection shows that, given the dependence of signification on the cognitive activity of an observing agent, the sign-significate relation is observer—or, more properly, cognizer—relative. For example, consider the following case. The piercing, beak-like suctorial mouthparts of the giant agave bug (*Acanthocephala thomasi*) leave behind small, brownish-red spots as it feeds upon the leaves of agave and other plants native to the American Southwest.[227] The feeding behavior of the insects causes the discoloration of the agave leaves; small, brownish-red spots upon the leaves of an agave plant are a sign of giant agave bug feeding behavior. Since the spots on the leaves are a sign of the feeding behavior of the insects, the spots signify the feeding of the insects and we may say that the signification of brownish-red spots on the agave is that giant agave bugs fed

[226] There is a similarity in this respect between Hobbes's definition of signs and C.S. Peirce's definition of signs. Both philosophers define signs in terms of a triadic relation between sign, signified, and an interpreting mind (see *The Collected Papers of Charles Sanders Peirce*, vol. 2, sec. 228, 135). They also both view signs and sign-inferences as the basic elements of experiential learning and concept formation.
[227] Charley Eiseman and Noah Charney, with John Carlson, *Tracks and Sign of Insects and other Invertebrates: A Guide to North American Species*, (Mechanicsburg, PA: Stackpole Books, 2010), 295-97.

there.[228] Those spots, however, can only be a sign of the activity of the agave bugs to "those trained to see" the causal connection between the spots on the leaves and the insects. Only someone with the relevant prior experiences and knowledge could be in a position to interpret the brownish-red spots on the agave as a sign of the giant agave bug. To the expert entomologist, the spots are a sign of the insects, for she knows the relevant facts concerning, for example, the feeding habits of agave bugs. However, to the uninitiated novice, lacking the relevant training, the spots would be cognitively inert. He can see the agave leaves and can see that they are marked with small, brownish-red spots, but to him these spots are just spots. He simply has not, and could not, have formed the right kind of cognitive habit. The spots on the agave are cognitively inert in the sense that they do not determine the mind of the uninitiated to an interpretation, nor to form any kind of expectation or presumption about the presence of the bugs.

There is a causal connection between spots on agave leaves and the bugs' feeding behavior, and this causal connection is implicated in the signification of the spots; hence, one might think that the sign-significate relation between giant agave bug feeding behavior and spots on agave leaves is essentially due to the causal connection. However, the cause and effect relationship between the insects and the spots does not suffice for their signification relationship. According to Hobbes's definition, only "those trained to see" the cause and effect relation should treat spots and insects as reciprocal signs. So, the observer with a sufficient amount of the right sort of experience should treat the insects as a sign that there are spotty agave (or other plant of the appropriate sort)

[228] I take it that it makes sense to treat "*x* signifies *y*," "*x* signifies *that y*," and "the signification of *x* is *that y*" as equivalent expressions, despite the awkwardness of the latter formulation.

somewhere around. The presence of the agave bugs will determine the mind of the appropriately trained observer of the insects to form an expectation or presumption that there are or were or will be leaves with brownish-red discolored spots. And, again, to the uninitiated, who lacks any sort of recollection of a constant association between the agave bugs and spots on agave leaves, the presence of the insects will portend nothing about the presence of spots.[229] Although causes and effects can be signs reciprocally, causal relations between the sign and the significate are neither sufficient nor necessary for the relation of signification to obtain between them.[230] Causes are signs of effects only where the interpreter condition is satisfied. Only when causes and effects have been observed and remembered to constantly be "antecedent" and "consequent" to one another are they signs of one another. It follows from the interpreter condition that signification is relative to an observer's epistemic positon, for the only observers in a position to be interpreters are those with the relevant experience and who observe and remember the pattern. Only those who are "trained to see" connected events as causes and effects are in the right epistemic and cognitive position to see such phenomena as reciprocal signs.

Cases like the above and Hobbes's own clichéd example—the sign-significate relationship between dark clouds and rain—upon which he fails to provide much in the way of helpful commentary, can somewhat obscure the message. When considering his

[229] In both cases I take it that the presence of spots on leaves or insects can signify *other* things to the non-expert. The point is simply that the non-expert has not experienced the repeated association of spots on leaves with agave bugs and has not been "trained" to see the cause and effect relationship between the two, so the non-expert does not expect the bugs when he sees the spots (and vice versa); hence, the non-expert does not treat *agave bugs and spots on leaves* as reciprocal signs of one another.

[230] To be clear: I am not denying that cause-effect relationships are important to signification. Indeed, cause-effect relations are the ones we care the most about especially when they hold universally. My point is that signification and the inference from sign to significate does not *need* to be based on a cause and effect relationship. A mere *observed* and *remembered pattern* suffices. Some sign inferences *really do* track a cause and effect relation.

case of dark clouds signifying rain there is a natural tendency to think of the correlated phenomena as signs because of the causal relationship between rain and dark clouds, and thus to overlook the role played by the epistemic perspective of the conscious interpreter, mediating the two. Because the clouds-rain case is the case Hobbes most often invokes to explicate his definition, he inadvertently primes the reader to treat his general definition of signs too narrowly as a definition of natural signs. This can give the misleading impression that Hobbes intends something like Paul Grice's notion of "natural meaning." This cannot be the correct way to understand Hobbes's definition, but Grice's natural meaning can be helpfully contrasted with Hobbesian signs. As I argued above, Hobbesian signification essentially involves an interpreting observer, who takes the sign, as an ineliminable element in the relation; hence, of itself a causal relation between sign and significate is insufficient. However, according to Grice, in cases of natural meaning "*x* meant that *p* and *x* means that *p* entail " and so if it is true, e.g., that "those spots mean (meant) measles," it follows that the patient has (had) measles.[231] I take it that Grice believes this is so because he is thinking of the causal relationship underwriting cases of (what he would call) natural meaning. The "these spots mean measles" entails "the patient has measles," because the measles caused the spots: you cannot have the spots without the measles. The existence of the natural meaning-bearer, it would seem, guarantees the existence of the naturally-meant, on Grice's account.[232] But Hobbes's comments on inferences from sign to significate (sign-inferences) show that while he allows that signs can be reliable indictors of their significate, the existence of the

[231] "Meaning," *Philosophical Review* 66 (1957): 377-388, reprinted in *The Philosophy of Language*, 4th ed., ed. A.P. Martinich, (Oxford: Oxford University Press, 2001), 92.
[232] A.P. Martinich, "Truth and Meaning," editor's commentary in *The Philosophy of Language*, 30.

significate is not entailed, or guaranteed, by the existence of the sign. Signs do not entail the existence of their significates, according to Hobbes. He is emphatic that signs are "but conjectural; and according as they have often or seldom failed, so their assurance is more or less; but never full and evident" (*Human Nature* iv.10). And "[t]he best Prophet naturally is the best guesser; and the best guesser, he that is most versed and studied in the matters he guesses at: for he hath most *Signes* to guesse by" (*Lev*. iii, 44: 7-9). If one can only guess at matters on the basis of signs, and if signs-inferences are conjectural, then a sign does not guarantee its significate. In every discussion of signs, Hobbes makes this point and claims that the reliability of sign-inferences is derived from the frequency with which the sign and significate have been observed to follow upon one another: "the oftner they have been observed, the lesse uncertain is the Signe" (*Lev*. iii, 44: 12-13). Although Hobbes does not give a detailed account describing the exact nature of the reliability of signs, much less how it is to be measured, what he does give us appears to point in the direction of subjective probabilities:

> [T]he [s]igns are but conjectural; and according as they have often or seldom failed, so their assurance is more or less; but never full and evident: for though a man have always seen the day and night to follow one another hitherto; yet can he not thence conclude they shall do so, or that they have done so eternally: experience concludeth nothing universally. If the signs hit twenty times for one missing, a man may lay a wager of twenty times to one of the event; but may not conclude it for a truth. But by this it is plain, that they shall conjecture best, that have most experience, because they have the most signs to conjecture by (*HN* iv.10).

The rationale for the wager of twenty to one is not based on the real or absolute frequency of antecedent-type events relative to consequent-type events, but on hits to misses, that is to say, on the available evidence: laying the bet of twenty to one is reasonable, given the better's background experience. Following Hobbes, I take it that the suggestion is that, given my prior evidence, I should be as confident that the significate shall follow the sign as I would be betting on a horse with twenty-to-one odds. Whatever the details of the account, for my purposes it is enough to note that this emphasis on the subjective evidence available to a perceiving, conscious agent for cognitive processing is exactly what should be expected, given the interpretation I am advancing. Since signification is a triadic relation obtaining between observable phenomena, mediated by the mental processes of a conscious agent, the reliability of the sign ought to be grounded somehow in the experience of the interpreter.

I am not at all denying that there may be a correlation or a causal relationship between the sign and the significate, nor that causes necessitate their effects (in some suitable counterfactually robust way). I am claiming only that, according to Hobbes's definition of sign, the essence of signification consists in the capacity of the sign phenomena to determine the thoughts of conscious beings in a particular way. Even if a sign and its significate are strongly correlated or stand in a cause and effect relationship, such that they are universally and necessarily conjoined with one another, the sign does not signify the significate—there is no signification—without some interpreter for whom the presence of the sign determines an expectation or presumption of the significate. Sign phenomena are signs only in virtue of the special role they play in cognitive activity.

This point is nicely underscored by the following passage (upon which I touch briefly in the last chapter), during the course of which Hobbes does in fact elaborate on the rain-cloud signification relationship. In his discussion in *De Corpore* of the distinction between error and falsity, Hobbes comments that "[t]acit errors, or errors of sense and cogitation" (in contrast with falsehoods) are made in many different ways, one of which occurs "when from any sign we vainly imagine something signified, which is not." He continues:

> And errors of this sort are common to all things that have sense; and yet the deception proceeds neither from our senses, nor from the things we perceive; but from ourselves while we feign such things as are but mere images to be something more than images. But neither things, nor imaginations of things, can be said to be false, seeing they are truly what they are; nor do they, as signs, promise anything which they do not perform; for indeed they do not promise at all, but we from them; nor do the clouds, but we, from seeing the clouds, say it shall rain (*De Corpore* v.1; my emphasis).[233]

Hobbes's point, I think, is clear: sign-phenomena of themselves, portend nothing. A dark cloud, of itself, does not "say" that rain may follow. It is, rather, the interpreting mind that observes the clouds, remembers that rain often follows dark clouds, and then expects rain and thereby reads a semiotic meaning into the phenomena. Indeed, on my understanding of his definition of signs, Hobbes would contend that there are no signs at all without sign-takers. Clouds, without any sentient beings that have been conditioned by

[233] Cf. *Lev*. v, 68: 1-5. Also *Anti-White* xxx.14.

repeated and recollected associations between clouds and rain, for whom those clouds can serve as signs of rain, are not signs of rain.

Although all of the cases thus far discussed have been cases of natural signification, this definition of signs – perceptual objects, which determine an observer to an interpretation – is, as I mentioned at the outset, Hobbes's general definition of signs and it is intended to apply equally well to artificial signification. It matters a great deal to arriving at a proper understanding Hobbes's philosophy of language that this semiotic account on display in his definition of signs is his view of the sign-significate relationship generally and there are several compelling reasons why we should take the definition in this way. The above-quoted passages—*Anti-White* xxx.13, *Human Nature* iv.9, *Leviathan* iii, 44: 10-18, and *De Corpore* ii.2—are the only explicit definitions Hobbes provides for his notion of signs: he nowhere else provides an alternative definition for artificial signs. This strongly suggests that Hobbes takes himself to be providing a general definition of signs and so of signification and, thereby, a general account of both natural and artificial signification. There is further textual evidence to support this contention. Consider again the discussion of signs in *De Corpore* again. The passage follows the definition of "marks" as notes for remembrance and a discussion of the need to invent them. Right before Hobbes gives his definition of signs he comments:

> Again, though some one man, of how excellent a wit soever, should spend all his time partly in reasoning, and partly in inventing marks for the help of his memory, and advancing himself in learning; who sees not that the benefit he reaps to himself will not be much, and to others none at all? For unless he communicate his notes with others, his science will perish with him. But if the same notes be

> made common to many, and so one man's inventions be taught to others, sciences will thereby be increased to the general good of mankind. It is therefore necessary, for the acquiring of philosophy, that there be certain signs, by which what one man finds out may be manifested and made known to others (*De Corpore* ii.2).

The very next sentence is his general definition of signs as "antecedents of consequents and consequents of their antecedents, as often as we observe them to go before or follow after in the same manner." The lead in to this definition—and note the invocation of the scholastic/Aristotelian and Hellenistic conception of signs as that which "makes known"—is a discussion of the necessity for inventing *artificial* notes, that is, conventional and arbitrary markers imposed upon things for the sake of memory. Names, as we have seen, are just one such mark. There is no indication that Hobbes thinks it is inappropriate or odd to slip immediately into a discussion of signification in the "semiotic" sense in this context. That strongly suggests that Hobbes intends the definition of signs and (my implication) signification he provides in the very next sentence to be a definition that covers *all* instances of signification, artificial and natural.

And although examples of natural signification are most prominent in his statements of the definition (when he provides an example), in *De Corpore* Hobbes goes out of his way to provide an example of artificial signification in this same context. Immediately following the definition of signs at *De Corpore* ii.2, Hobbes provides the dark clouds-rain example to illustrate his definition. Dark clouds are a sign of rain "for this reason only, that we seldom see clouds without the consequence of rain, nor rain at any time but when a cloud has gone before": we have been habituated by experience and

association to think of rain when we see clouds (and vice versa). The very next sentence, within the definition of signs at *De Corpore* ii.2, Hobbes writes:

> And of signs, some are natural, whereof I have already given an example [sc. in the previous sentence], others are arbitrary, namely, those we make choice of at our pleasure [alia arbitraria, nimirum quæ nostra voluntate adhibentur], as a bush hung up, signifies that wine is to be sold there; a stone set in the ground signifies the bound of a field; and words so and so connected signify the cogitations and motions of our mind (*De Corpore* ii.2).

Between these examples of artificial signification and the example of natural signification, there is no alternative definition of signs. So, he draws a distinction between artificial and natural signs (artificial signs depend somehow on arbitrary choice and natural signs do not), but does not give any characterization of the signification of these different kinds of sign, apart from the italicized definition preceding this distinction. Hobbes is therefore inviting his readers to take the definition given in this passage as an explication of the signification relation as it occurs in every example he proffers in the passage. After all, if he did not so intend, he would be guilty of a pretty egregious kind of equivocation and would be misleading his readers. He would be providing examples of signification which would not be explicating the definition he just gave of signs. That would obviously undercut the very purpose of giving illustrative examples, for in that case the examples dealing with instances of artificial signification would illustrate nothing about signs as he has just defined them or about artificial signification. Yet, he does this in a context in which he is explicating the rudiments of his philosophy of language, in which artificial signification features prominently. Hence, the most

reasonable way to read this passage—since he does not significantly alter the definition nor provide any other definition—is to interpret Hobbes's definition of signs as a characterization of signification as a genus, with natural and artificial signification as its species. Natural and artificial signification are just two distinct kinds of one more general phenomena: signification. Signification, generally, involves a triadic relationship between causally connected or correlated things and events, the connection or correlation of which is noted, remembered, and interpreted. Natural signification arises when the connection or correlation between events is natural and does not depend on the will; artificial signification arises when the connection or correlation between events is produced arbitrarily, by convention and depends on the will.

I shall return to consider the exact application of the general definition of signs to particular cases, especially of artificial signs, but for the moment I want to consider some further evidence that Hobbes sees signification as a genus, with two species. There are many cases in Hobbes's work in which he deploys the words 'sign' and 'signification' to cover both cases of natural and artificial signification, within the same passage. For example, *Human Nature* xiii contains a discussion of the ways in which we affect one another by means of speech acts. This chapter is a continuation of Hobbes's discussion in *Human Nature* viii and ix of the effects of thoughts (particularly of one's own power and worth) and the passions on behavior and the various ways in which such behavior, thereby, constitutes a natural sign of passion, desire, opinion, etc. Hobbes opens *Human Nature* xiii with the following transitional remarks:

> Having spoken of the powers and acts of the mind, both cognitive and motive, considered in every man by himself, without relation to others; it will fall fitly

> into this chapter, to speak of the effects of the same powers one upon another; which effects are also the signs, by which one taketh notice what another conceiveth and intendeth. Of these signs, some are such as cannot easily be counterfeited; as actions and gestures, especially if they be sudden, whereof I have mentioned some; (for example, look in chapter IX.) with the several passions whereof they are signs; others there are which may be counterfeited; and those are words or speech; of the use and effects whereof, I am to speak in this place (*HN* xiii.1).

In this passage Hobbes is clearly using 'sign' to cover both the signification of natural signs and the signification of artificial signs. He is discussing the signs by which we signify what we "conceiveth and intendeth" to one another, and "of these signs"—the signs of conceptions and passions—some are more easily feigned than others. Certain kinds of behavior, particularly when "they be sudden" are not "easily counterfeited" are natural signs of the intentions and beliefs of other people. This is because there is a tight, involuntary and natural causal connection between these passions and the behavior. Humans are so-constituted such that, for example, the "distortion of the face with tears, called weeping" is a sign of "the sudden falling out with ourselves, or sudden conception of defect" (*HN* ix.14). The outward manifestation of the passion in the form of weeping is a natural feature of human psychology. So, sudden weeping is a sign that the weeper is dejected by the conception of some defect within himself. These kinds of behaviors constitute natural signs of the passions by which they are caused. Hobbes contrasts these natural signs "by which one taketh notice what another conceiveth and intendeth" with artificial signs—"words or speech"—which, because they are arbitrary and voluntary

signs of the passions, can be "counterfeited." Exactly how artificial signs signify is an issue that I shall consider below. My point here is simply that Hobbes is using 'sign' in the same sense to cover both the natural signification of thoughts and passions by bodily motions and the artificial signification of the same by voluntary utterance. That sense, because there is no alternative provided, is the definition of signs given at *Human Nature* iv.9.

The point that the natural signs of the passions are not as easy to fake as the artificial signs, also comes up in *Leviathan*. There too Hobbes uses 'sign' to cover instances of both natural and artificial signification in the same passage. In discussing the different forms of speech by which thoughts and passions are expressed, Hobbes comments that:

> These forms of speech, I say, are but expressions, or voluntary significations, of our passions; but certain signs they be not, because they may be used arbitrarily, whether they that use them have such passions or not. The best sign of passions present are in the countenance, motions of the body, actions, and ends or aims which we otherwise know the man to have (*Lev*. vi.56).

"Forms of speech" are artificial signs of the passions while signs like the "countenance, motions of the body, actions," etc., are natural signs. Since verbal signs of the passions are voluntary expressions of the passions, they are less certain than the natural signs of the passions, for the latter derive from natural, involuntary features of human psychology and so are more difficult to suppress or feign than the former. In the first sentence of *Leviathan* vi.56, Hobbes is using "sign" and "significations" to refer to artificial signs and artificial signification, i.e., the signification of words (a paradigmatic case of artificial

signification). In the very next sentence "sign" refers to the natural signs of the passions. The contrast between these two is being drawn within the larger category of signs not between two distinct notions of sign and signification; there is no alternative general definition of sign. Hobbes is advising the reader to pay heed to the natural signs of the passions, for actions and countenance are better than words as signs of the passions and this is because they are more certain signs qua sign. Although artificial signs and natural signs may arise from different sources, the general sense in which they are significant is the same.

A further example comes from the discussion of speech and language in *De Homine*. "Speech or language," Hobbes tells us, "is the connexion of names constituted by the will of men to stand for the series of conceptions of the things about which we think" (*De Homine* x.1). Moreover, language and genuine linguistic competency is "peculiar to man" (*De Homine* x.1), for, Hobbes argues:

> [E]ven if some brute animals, taught by practice, grasp what we wish and command in words, they do so not through words as words, but as signs; for animals do not know that words are constituted by the will of men for the purpose of signification.
>
> Moreover, the signification that does occur when animals of the same kind call to one another, is not on that account speech, since it is not by their will, but out of the necessity of nature, these calls by which hope, fear, joy, and the like are signified, are forced out by the strength of the passions (*De Homine* x.1).

Hobbes's point about the distinction between the signification of words "as words" and the signification of words "as signs" is that nonhuman animals understand speech (in the sense given at *Leviathan* ii, 36) as signs of our passions and our wills, but they do not understand speech in the *intellectus* sense (given at *Leviathan* iv, 62). That is, animals do not have conceptions *of the object upon which the name is imposed for a mark*. So, for example, when Archie hears the word 'biscuit' he get up off of his bed and comes running over, expecting that I am about to get up and feed him. 'Biscuit' causes conceptions in Archie—a kind of expectation that guides his behavior—and so it is a form of understanding. But when we hear the word 'biscuit' we recognize it as a kind of linguistic marker or a token, imposed upon *those* things for various accidents. This is a form of understanding too, but it is one in which the conceptions of biscuits enter not simply into expectations; the conceptions of biscuits enter into different trains of reasoning and different ways of considering the biscuits (*viz*. those accidents for which we name anything a 'biscuit'). In other words, when you say to me 'we are out of dog biscuits' I do not expect you to *get* biscuits, but one must always be careful uttering the word 'biscuit,' no matter its propositional "contexture," around my plump little dog. The conceptions raised by the word play different roles in our understanding and in Archie's.

But this difference is not so important for our purposes and here I would note only that Hobbes uses "signification" to cover both the signification of words—"peculiar to man"—and the signification of the calls and cries of nonhuman animals. Again Hobbes is using 'signification' to cover both artificial signification and natural signification. This suggests again that the difference between the signification of words and the signification of nonhuman animal noises is an interspecific distinction between members of the same

genus; it is like the distinction between Dalmatians and dingoes, not penguins and pigs. *De Homine* is the second book of The *Elements of Philosophy*, the three books of which are intended to constitute one complete, grand presentation of Hobbes's system.[234] *De Corpore* is the first book of the work and it is the only place in *The Elements of Philosophy* where Hobbes gives any explicit definition of signs. Hence, we should expect that definition to be in force in *De Homine* as well. This is precisely what we see here in the above-quoted passage. The signification of animal signals, like the signification of countenance, gesture, bodily motion and so on, involves a natural causal relationship between the sign and the signified. Animals call out to one another "out of the necessity of nature"; their calls are "forced out by the strength of the passions." Given the causal relationship between the animals' calls and their passions, the calls and passions are "antecedent" and "consequent" of one another, and so by the definition in *De Corpore* ii.2, if the calls are signs of the passions, the animals interpreting the signs must have observed call and passion "to go before or follow after in the same manner." On the interpretation I have been advancing, the key point of Hobbes's definition of signs is the triadic nature of the relation. Although there must be some kind of connection between sign and significate, there is no signification without the mediation of cognitive processes: the connection between sign and significate must register in the imagination and memory, such that the perception of the sign determines the mind to a conception of

[234] Along with *De Cive*, which was the third in the series, though first in the order of publication. See the Epistle Dedicatory to *De Corpore*. The title "*The Elements of Philosophy*" should probably strictly apply only to the (according to some, dubious) English translation of *De Corpore*, since the three books or "sections" of the larger work were never published as a unit under that English title by Hobbes. Generally, however, I am working from English translations of all three parts of the *Elements* and I feel justified in liberally applying the English title to *De Cive* and *De Homine*. On the history of the publication of *The Elements*, see A.P. Martinich, *A Hobbes Dictionary*, (Oxford and New York: Blackwell), 88-95, 318-19, and 321

the significate. Hobbes is not saying that the signification that occurs when humans use words as words is different from the signification of nonhuman animal signals because the latter instantiate a different signification relationship from the former. Again, the point is rather that the naturalness of natural signs arises from the naturalness of the connection between sign and significate. Natural sign is connected to natural significate by brute correlation or by causation; we didn't do anything to forge a connection between them. Artificial sign connects with artificial significate by acts of will (a special kind of cause). The source or reason for the connection is different, but qua sign both artificial and natural signs signify only to those who have been properly conditioned to recognize the connection. The condition adumbrated in *De Corpore* ii.2 (and the other statements of Hobbes's definition of signs) that "antecedents of consequents" and "consequents of antecedents" are signs of one another "as often as we observe them to go before or follow after in the same manner"—the interpreter condition—is the essential element.

4. Expectation and the Conception of the Future

Although what he does describe is very suggestive and interesting, Hobbes unfortunately did not develop his account of signs in any substantial detail. There just is no extant work (that we know of) in which Hobbes tries to develop a theory of sign-inferences in anything other than a sketchy, incomplete fashion. He simply does not tell us enough about how the logic of the actual inference from sign and to significate is supposed to work and a little more, though not much, about the psychology of it. The best that I think we can do in interpreting Hobbes's view on the subject is to piece together a rough account from the little he does say about the matter in his definition of "signs" and to rely

(heavily) on the few examples he provides. But, as sketchy as it is, what does emerge clearly from the information available to us is a picture of the natural mind and its powers at odds with the "made with words" thesis. Above I have argued that it is critical to Hobbes's reductive account of the mind that he give a deflationary story about the scope of the human cognitive power. He reduces cognition, in all its various forms, to the operation of the imagination and this implies a continuity, not a "great divide" between the natural, un-worded mind and the mind "made with words." His point is to dethrone the special place of humanity in the grand order of things, to subject the human mind to the same natural laws that govern the rest of creation; and, as I pointed out in chapters 3 and 4, his chastisements of Bramhall for his Scholastic hyper-intellectualism make this agenda apparent. There is a sense in which the non-worded mind reasons and computes—it "discourses" in a rational and deliberate fashion and to the same extent as the worded mind. If, in calling this process a "merely passive association of ideas," the intention is to deny that the natural discourse of the mind counts as conscious rational thought, then we must reject the claim. One reason Pettit cites for this claim is that, according to him, "Hobbes does not think that the natural mind sees that there is a likeness between what happened previously and what is likely to happen now," rather, the natural mind just "registers" the likeness and this "engenders the appropriate expectation."[235] Now, Pettit postulates these subconscious "registerings" in an effort to extricate Hobbes from a vicious circle (allegedly) generated by his acknowledgement of likenesses between particulars and the commitment to nominalism. But as I argued in section 2, this is not a very compelling argument.

[235] Pettit, *Made with Words*, 35.

Here in this section I wish to point out two things. As I argued in the last chapter, the "made with words" thesis is shaped in part by the need to preserve the large gap that is perceived between the human cognitive powers and the nonhuman animal cognitive powers. Pettit's position, for example, is affected by this dialectical pressure. Believing that Hobbes posits a "great divide" between the human mind and the animal mind, but noticing that the un-worded human mind is more or less on the same footing with the animal mind, he is backed into positing more fundamental differences between the natural human cognitive faculties and the nonhuman animal faculties to keep this gap wide. One difference he tentatively posits, as we have seen (in chapter 4), is a "computational faculty" responsible for the human capacity for language. But this alleged inability of the nonhuman animal mind to consciously register likenesses between objects and to project what they learn from experience forward, into the future is another example. Why exactly does Hobbes have to hold that the animal mind must register likenesses unconsciously? To avoid the vicious circle, sure; but it is also to prevent the conclusion that nonhuman animals do have a pre-linguistic ability to classify objects on the basis of perceptual similarities and by a process of associative learning to consciously use this information, to successfully "see that there is a likeness between what happened previously and what is likely to happen now." If Pettit admits this, then the gap between the un-worded mind and the worded mind closes—animals would be capable of engaging in what looks, for all intents and purposes, a lot like conceptual thought. At least, it looks like conceptual thought in the "pragmatic" or (as I prefer) "empiricist" sense of concept possession—a mental power manifested as an ability to classify and group, to make sense

of one's environment and to act successfully with respect to it.[236] But the capacity of the natural nonhuman, un-worded animal mind to perceive signs and to make judgments on the basis of signs—sign-inferences—is exactly the power to see "that there is a likeness between what happened previously and what is likely to happen now." In this section I explore that natural, non-linguistic power of the mind.

We have already seen from the above definition of signs how sign-inferences basically work. Sign-inferences are obviously a kind of non-deductive inference and they should be regarded as inductive, rather than abductive, inferences. The mind takes the sign from experience and, upon seeing the sign, "looks again for the consequence" or the "antecedent;" although this latter inference is from effect to its probable cause, Hobbes's discussion makes no mention of an inference from a sign to its most likely cause, as an explanatory hypothesis, from the weighing-up and rejecting of competing hypotheses. I do not doubt that there are people with ingenuity sufficient to jerry-rig a Hobbesian notion of abductive inference from what he says about signs, but such notion would not really be Hobbes's. What Hobbes is giving us is a psychological account of how the mind learns and makes use of the association of ideas, drawn from experience, the memory of likenesses between objects experienced and of "what followed from what," and regulated trains of thought. A sign-inference is a train of thought "governed" by the desire to seek out causes and effects—to predict and to form conceptions about what will happen or

[236]I prefer "empiricist" because it seems to me that mental representations are still essential to concept possession even in this "abilities" sense. I take the term "pragmatist" from Jerry Fodor "Having Concepts: A Brief Refutation of the Twentieth Century," *Mind & Language* 19 (2004): 29-47 and the reply by Jesse Prinz and Andy Clark "Putting Concepts to Work: Some Thoughts for the Twentyfirst Century," *Mind & Language* 19 (2004): 57-69; see also Jesse Prinz "The Return of Concept Empiricism," in *Handbook of Categorization in Cognitive Science*, eds. Henri Cohen and Claire Leferbvre (Amsterdam: Elsevier, 2005), 679-695.

what has happened. A sign-inference is a discourse of thought that moves from the observation of the sign to the expectation or presumption that the significate event will or has happened. It is an inference from the observed to the unobserved, underwritten by the interpreter's experience and memory, and the natural awareness of similarities and differences between things is essential.

To make Hobbes's view clearer, it would be helpful to have some more text before us. These texts illustrate Hobbes's views on the way in which we are able to think and to reason about the future from the conceptions of our present sense experience and our memory (and, *mutatis mutandis*, the unobserved past—or whatever is "non-apparent"). One thing that Hobbes is adamant about is that there is no conception that is, strictly speaking, of the future. This, he takes it, follows from the Copy Principle: since the only conceptions and ideas we have are individual representations of particular extra-mental objects with which we have made perceptual contact, there cannot be any conception of a future event, for the future does not yet exist and so cannot affect the senses. Nevertheless, he does not believe that we have absolutely no capacity to think or deliberate about the future. That would be a very impoverished account of the mind indeed and we have already seen that Hobbes recognizes that deliberation is always about future events and actions. The idea we form of the future is a kind of mental fiction, a useful fiction. "The Present onely has a being in Nature," he writes in *Leviathan*, "things Past have a being in the Memory onely, but things to come have no being at all; the Future being but a fiction of the mind, apply the sequels of actions Past, to the actions that are Present" (*Lev*. iii, 42: 31-32; 44: 1-2). That is, the idea of the future is like an idea of a chimera in a sense: it is not "simple imagination," but a "compounded" imagination,

and not a copy of any real thing. In *De Corpore* he describes the conception of the future as a "knitting together" of ideas in the memory with those of occurrent perceptual experience. Commenting on the existence of empty (i.e. non-denoting) but significant, meaningful, useful names, Hobbes claims:

> [T]his word future is a name, but no future thing has yet any being, nor do we know whether that which we call future, shall ever have a being or no. Nevertheless, seeing we use in our mind to knit together things past with those that are present, the name future serves to signify such knitting together (*De Corpore* ii.6).

He makes this point, that the mind cannot form a conception that directly represents the future, but instead constructs a surrogate conception, as a kind of "mental model" from the ideas of the memory, both in *Human Nature* ii.7 and *Anti-White* xxx.11, fol.342v as well (although, in the latter, Hobbes seems to think of the account as a kind of error theory, reminiscent of Hume's story at *THN* I.iv.2 of the origin of the belief in the continued and distinct existence of bodies). I shall return to this point below when I discuss the connection between the limitations of natural memory and the uncertainty of sign-inferences, but for now I note in passing that the compounding of ideas from "parcells" is for Hobbes as for Epicurus a source of misrepresentation and error. The ability to make a mental fiction that can serve as a model of the future, involves the conscious comparison of ideas; it involves seeking out similarities and likenesses between events as they are preserved in the memory and an expectation that a like event will follow. Hobbes closely links prudence, the conception and expectation of the future (and the conjecture of the unobserved past) with signs and sign-inferences; and each of

his discussions of the conception of the future and the unobserved past—in *Anti-White*, *Human Nature*, and in *Leviathan*—illustrates the way in which he views signs and sign-inferences as part and parcel of the natural, non-language-using mind's cognitive powers. Sign-inferences are just another kind of regulated train of thought. They are a form of discursion and are therefore integral to the natural, (non-worded) cognitive apparatus that is common to humans and nonhuman animals. This capacity to "knit" together a mental model of future events, to form expectations, and to make sign-inferences, presupposes that the natural mind can consciously note and make use of perceived likeness between events and objects. In the paragraph preceding the definition of signs in *Leviathan*, he writes:

> Sometimes a man desires to know the event of an action; and then he thinketh of some like action past, and the events thereof one after another; supposing like events will follow like actions. As he that foresees what wil become of a Criminal, re-cons what he has seen follow on the like Crime before; having this order of thoughts, The Crime, the Officer, the Prison, the Judge, and the Gallowes. Which kind of thoughts, is called [sic] Foresight, and Prudence, or Providence; and sometimes Wisdome; though such conjecture, through the difficulty of observing all circumstances, be very fallacious. But this is certain; by how much one man has more experience of things past, than another; by so much also is he more Prudent, and his expectations the seldomer faile him (*Lev*. iii, 42: 21-31).

In the very next sentence, Hobbes makes the claim (quoted above) that the future is a "fiction of the mind" made by "applying the sequels" of past actions to the circumstances

present. This example is an illustration of the kind of train of thought that underwrites a sign-inference. The train of thought is regulated by the desire to know what effect a certain action shall have. The desire to know what consequences shall follow upon this event looks back through the memory and experience it has of like events. Then, the mind "knits together" a conception of the future—a mental fiction, composed of the present, observed event conjoined to the consequences of like actions. So, by the definition given in *Leviathan* vii of the "ends or resolutions" of a discourse of the mind governed by the desire for knowledge, the train of thought must end "in a Præsumption of it will be, or, it will not be; or it has been, or, has not been" (*Lev*. vii, 98:9). That presumption is an expectation that a like event shall or shall not (has or has not) occurred. And when this train of thought has occurred time and time again—when one has found that this presumption and expectation is repeatedly confirmed—then the habit of mind by which one comes to expect "like antecedents" followed by "like consequences" becomes engrained. That is just the "taking of signs by experience," or how one becomes "trained to see" signs.

Hobbes uses the very same example in *Human Nature* and, although his account of the nature of the mental construction of the future is not as clearly stated as it is in *Leviathan*, the connection between the "feigning" of a future and signs is very explicit. There he writes (and I quote at length) that:

> No man can have in his mind a conception of the future, for the future is not yet: but of our conceptions of the past, we make a future; or rather, call past, future relatively. Thus after a man hath been accustomed to see like antecedents followed by like consequences, whensoever he seeth the like come to pass to any

> thing he had seen before, he looks there should follow it the same that followed then: as for example, because a man hath often seen offences followed by punishment, when he seeth an offence in present, he thinketh punishment to be consequent thereto; but consequent unto that which is present, men call future; and thus we make remembrance to be the prevision of things to come, or expectation or presumption of the future (*HN* iv.7).

A few things are worth noting about this passage. The first is that it precedes the definition of signs given at *Human Nature* iv.9: that a sign is the antecedent of a consequent and the consequent of an antecedent, when "a man hath so often observed like antecedences to be followed by like consequents." Although in *Leviathan* Hobbes calls this cognitive act "prudence," rather than "expectation," the account is basically the same. So, as in *Leviathan*, the account Hobbes gives us is that the mind constructs a model in the imagination of what events it expects to follow a given event, based on the experiences it recalls of other, similar events; as that expectation is confirmed by repeated experience it becomes habitual, so then the "antecedent" event becomes a sign of the "consequent" event (*Human Nature* iv.8 deals with the construction of a mental model of the unobserved past and covers the other half of the sign definition). All of that depends on the mind's ability to perceive and remember likenesses between events and objects. And this brings me to the second point. The noticing of likenesses here is a conscious act of the mind, as much as any other cognitive act involving ideas and phantasms. Hobbes calls the imagining of the events consequent to the present—the feigning of a future—a process of making remembrance a "prevision" of what it is to come. Hobbes defined "experience" in *Human Nature* this way:

> The remembrance of succession of one thing to another, that is, of what was antecedent, and what consequent, and what concomitant, is called an experiment… To have had many experiments, is what we call experience, which is nothing else but remembrance of what antecedents have been followed by what consequents (HN iv.6).

So, experience is a remembrance of "what antecedents" have been followed by "what consequents," and this must surely involve the "registering" of likenesses. But, looking earlier in *Human Nature* to the definition of "remembrance," the registering of likenesses involved in experience—the remembrance of "what antecedents have been followed by what consequents"—is a conscious registering. As Hobbes defines "remembrance" it is a kind of "sixth sense" by which we notice our own conceptions and he claims that not only do we "take notice" of external objects by the sense organs:

> [B]ut we take notice also some way or other of our conceptions: for when the conception of the same thing cometh again, we take notice that it is again; that is to say, that we have had the same conception before (*HN* iii.6)

What Hobbes is describing is the sort of consciousness that also grounds the discriminatory judgments of sense perception I discussed in chapters 1 and 2. "Remembrance" is a kind of recognition that a given phantasm of sense is similar to an earlier one: thereby the mind is able to recognize objects of perception in its environment. I see Archie and I am aware that that is the very dog that I perceived yesterday and the day before that—I "re-conn" my dog. The mind is able to do this by the "sixth sense" of "remembrance," according to the story in *Human Nature*. Although he drops the phrase 'sixth sense' in in reference to this ability, Hobbes expresses the very same view in his

discussion of the "discourse of the mind in *De Corpore*. There he comments that the "perpetual arising of phantasms, both in sense and imagination, is that which we commonly call discourse of the mind, and is common to men with other living creatures" (*De Corpore* xxv.8). But just what is this discourse of phantasms, that is common "to men with other living creatures"? He continues:

> For he that thinketh, compareth the phantasms that pass, that is, taketh notice of their likeness or unlikeness to one another… Now this observation of differences is not perception made by a common organ of sense, distinct from sense or perception properly so called, but is memory of the differences of particular phantasms remaining for some time; as the distinction between hot and lucid, is nothing else but the memory both of a heating, and of an enlightening object (*De Corpore* xxv.8).

The discourse of the mind is thinking. But this ability to think, to "cogitate," according to the account in *De Corpore* is not simply to have a bunch of associated ideas "bubble up" and pass away. It is a capacity to also notice and compare phantasms of the sense with those in the memory. The discourse of the mind is a causally determined process, but it nevertheless involves a conscious apprehension of perceptual similarities and differences, of likenesses and unlikenesses between the objects of our ideas and experiences—and it is shared in common between humans and the "brutes." I say between the objects of our ideas and not simply the ideas themselves because, as I have established in chapters 1 and 2, Hobbes just does not hold a "sense data" theory of perception. So, the comparing of the likenesses of phantasms is not just a mental "looking" at the inside of the veil of perception. It is to actually perceive similarities and differences in the objects sensed.

This is confirmed in *De Corpore* xxv.8. The distinction between the phantasm of heat and the phantasm of light, the phenomenal qualities, is a memory of an object that was both warm and luminous. Since the sensible quality of light is just the act of perceiving an illuminated body by the eyes, while the sensible quality of heat is the act of perceiving a warm body by touch, the two phantasms remaining in the imagination can be compared and distinguished from one another as two distinct acts of perceiving one and the same body. But there is no suggestion here that in comparing phantasms, I am only comparing ideas, without any sort of real contact with the mind-independent bodies they represent. I am tracking differences and similarities in objects, by the recollection and memory of the phantasms by which they "make us notice" and distinguish them in sense experience. The idea and conception of Archie—the unfortunate bundle of sensible qualities "adjacent in the act of perceiving" that constitute my notice and knowledge of him, retained in the brain—enables me to recognize him, when I meet with him in experience again. A fetid odor, a furry black shape, a loud barking—these phantasms of sense, cohering in experience, are my knowledge and "notice" of Archie, caused by his accidents and qualities. They stimulate the recollection of like phantasms, associated and retained together in the memory, along with other connected and cohering ideas, and I instantly recognize my dog. Perceiving the dog makes me "re-con" a similar series of conceptions of him retained in the brain. I "take notice" that conceptions "of the same thing cometh again."

The point that once again Hobbes is pretty clear: the natural, non-worded mind is perfectly capable of recognizing and tracking the similarities and differences between objects and their accidents, contrary to the suggestion of Pettit and the "made with

words" thesis. There is no reason, furthermore, to attribute to Hobbes the view that this capacity for sign-inference (and indeed the abilities of "fictionalizing" the future, and of deliberation) do not really count as "thinking," because they do not involve language. The natural animal mind, as much as the linguistically-conditioned human mind, makes use of these perceived and remembered likenesses and dissimilarities between objects, events and their accidents. The suggestion in *De Corpore* xxv.8 is that the discourse of the mind—the orderly succession of one thought to the next—depends on this apprehension. But it is not a subconscious "registering" of the similarities and differences; the phantasms of sense just are the conscious notice we make of the objects of sense and by which we are able to distinguish them from one another. This carries right over to their reappearance in the memory (thanks to the Hobbesian Copy Principle). The similarities and differences noticed by the mind in memory and in sense makes it possible for organisms to successfully navigate their environment. They unify regulated trains of thought and they play a critical role in forming expectations and, hence, in sign-inferences.

The account in *Anti-White* is more or less the same, but it is interesting and worth looking at for the amount of detail Hobbes provides. Although *Anti-White* is an early (ca.1640) work and unpublished in its entirety in Hobbes's lifetime, for the most part the positions he expresses in this work are consistent with those found in his later, more or less canonical expressions of his philosophical system, such as *Leviathan* and *De Corpore*. Care must be exercised in attributing positions in *Anti-White* categorically to Hobbes, but where one finds this kind of doctrinal and argumentative consistency between his mature philosophical work and *Anti-White*, then we may be justly more

confident in our acceptance of evidence from that work. The account of signs and sign-inferences in *Anti-White* is just such a case. His view expressed there is basically the same as that of *Leviathan* and *De Corpore* and he rehearses many of the same considerations; hence, I believe we are justified in thinking that what we find in *Anti-White* genuinely reflects his considered positon.[237] And in *Anti-White* we find that, as he does in the accounts of signs and sign-inferences in *Human Nature*, *Leviathan*, and *De Corpore*, Hobbes argues that signs and sign-inferences are based in a kind of habitual expectation of future events from experience, noting and recalling "that there is a likeness between what happened previously and what is likely to happen now." Immediately following his discussion of the "discourse" of the mind and the "collecting-together" and "unloosing" of ideas, he writes:

> Now, just as there is memory of things we have perceived, so also there is memory of the succession from one thing to another, or of event to event, or from antecedent to consequent. This is usually called 'experience'. He who has noted and remembered many experiences, i.e. many consequences of things, is said to have much experience of things. Again, someone may have already experienced many consequences similar [to one another]. On seeing an event [eventus] resembling a past event, he thinks that the present event will be succeeded by another event which resembles the consequences of the past event. On the other hand, say he witnesses some event like one resulting from some previous event.

[237] One difference, as I have already mentioned in passing, is that in *Anti-White* is view on the expectation of the future appears to be a kind of error theory: the mind "mistakes" ideas of the past for ideas of the future, projecting the sequence of events recorded in the memory forward in time. This could simply be an effect of the rather clunky style of *Anti-White* and the translator's occasionally injudicious interpolations, but in any event, in later works he pretty clearly does not think that in constructing a "mental model" of the future the mind makes *a mistake* thereby.

> He will also think that [the event which we witnesses has an] antecedent which resembles a past antecedent (*Anti-White* xxx.11, fol. 342v).

This is the same now-familiar story that I have been rehearsing on Hobbes's behalf. The ideas in the memory, thanks to the mechanism of the senses and the Copy Principle, are the record of what particular events succeeded what other particular events. If, in sense perception, we perceive *that* (*hoti*) followed by *that* (*hoti*), the conceptions of these two things is retained by the brain in the imagination and memory. But then so too is their succession from one to the other and the conception of that naturally introduces the conception of that. When the mind forms the expectation that a similar event will follow, it perceives a similarity between occurent phantasms of sense—its notice and cognition of an object of sense—and a memory of some previously perceived thing. This triggers the mind to "discourse" back along that old chain thanks to the laws of association (the Hobbesian Hebbian Rule) that guarantees that the order and coherence of thought follows the order and coherence of the appearances of their objects to the senses. It excites the old succession and an expectation that a like "consequent" will follow. This is just to "make a future" out of the past:

> Let me illustrate. Someone who notices a dense cloud expects rain because he has seen that previously it often or always happened that [the appearance of] a cloud was followed by rain. …The explanation must be that a concept [*imaginatio*] of the future is identical with a concept of the past. But we believe or suppose that this order is related to the present. This we do by assuming that similar occurrences [*eventus*], namely a past and a present one, are not [merely] similar but are as thought the same thing in number. Hence we believe or suppose,

> [wrongly,] that an occurrence which in fact has preceded a previous one seems to follow [it]. Whatever is put after the present, however, we call 'the future' (*Anti-White* xxx.11, fol. 342v).

I have already pointed out that this account of the formation of our notion of the future appears to be an error theory, but I have some reservations about the translator's choices. First, '*imaginatio'* should probably not be translated as 'concept,' but as 'image' or 'imagination'; for we should understand Hobbes as claiming that we do have a concept of the future, in a recognizable sense of "concept," but not a conception of it. There is no mental representation of a future event, but we have a concept of the future in that the imaginative construction the mind forms from the conceptions in the memory determines beliefs about what will happen, thereby regulating behavior in the relevant way. That is, we have no mental image of the future; but imagery does not exhaust our concepts (hence, the natural mind is capable of a kind of conceptual thought, though there are no universal ideas). We must keep in mind that Hobbes is groping toward a causal-functional account here. An organism possesses a concept of the future, insofar as its behavior and expectations are regulated by images in the imagination in the right sort of way (it can, for example, anticipate rain when it observes clouds). Second, I am hesitant to attribute an error theory interpretation here and the translator's interpolation of 'wrongly' into the second to last sentence is perhaps misleading. It may reflect a misinterpretation of Hobbes's point in the passage. I note that, were it not for this insertion, the account in *Anti-White* would be consistent with that which Hobbes gives in *Leviathan* and *Human Nature*, where he does not appear to regard the "making" of a future from the remembrance of the past as (*ipso facto*) an error. But whether Hobbes

changed his mind on this point is not a question I will pursue in any depth, as it is orthogonal to the topic at hand. An organism's ability to expect and anticipate what shall happen—which is the psychological basis of a sign-inference—is dependent upon that organism's ability to notice and recall similarities between events. So, even if the construction of a future from the ideas in the memory is a kind of cognitive error, nonetheless it is an error which is made on the basis of perceptual similarities. On the error theory reading, Hobbes is claiming that the natural mind is duped into forming expectations by confusing ideas in the memory for ideas of the future by (illicitly) "assuming that similar occurrences" are not merely similar, but "the same thing in number." This is a confusion that, it seems to me, could only occur because the organism has noticed the similarities between a present event and a past one. It is analogous to the way in which one might confuse Lou Ferrigno and Dennis Farina or Richard Kiel and Jack Elam.

There is much more that could be explored here. For example, although Hobbes does not say much, and what he says is fairly cryptic, an examination of the exact way in which the faults of the memory impede cognitive functions and sign-inferences in particular would be the next logical step in the analysis I have been giving. But what I have thus far argued suffices to make my main point: the "made with words" thesis is not a good interpretation of Hobbes's philosophy of mind. As we have seen, it cannot adequately handle Hobbes's functionalist accounts of deliberation and reasoning. Neither can the "made with words" interpretation handle the very thing that it seemed at first blush most equipped to explain—the relationship between mind and language. In particular, as we have seen in this chapter, the "made with words" thesis cannot

adequately capture Hobbes's reduction of the intellect, or the faculty of understanding, to an operation of the imagination. As we have seen, the relevant operation of the imagination is a sign-inference. But signification constitutively depends upon the very ability to consciously recognize and to group distinct particulars on the basis of their "similitude in some accident, or other quality." In short, the "made with words" thesis attempts to foist upon Hobbes an implausibly impoverished theory of the natural, nonlinguistic cognitive faculties. In doing so, it robs Hobbes of the power to give the very empiricist and materialist explanations that are so absolutely critical to his overall philosophical project.

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